

Exhibit 30

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

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

VIDEOTAPED DEPOSITION OF

CAROL L. OSLER, Ph.D.

Tuesday, December 21, 2021

Reported by:
BRIDGET LOMBARDOZZI,
CSR, RMR, CRR, CLR
Job No. 211221BLO

UNITED STATES DISTRICT COURT
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GARLINGHOUSE, and CHRISTIAN)	
LARSEN,)	
)	
Defendants.)	
_____)	

Videotaped deposition of CAROL L. OSLER, Ph.D.
taken on behalf of Plaintiff, held at the offices of
Debevoise & Plimpton, 919 Third Avenue, New York, New
York, commencing at 9:07 a.m. and ending at 6:14 p.m., on
Tuesday, December 21, 2021, before Bridget Lombardozzi,
CCR, RMR, CRR, CLR, and Notary Public of the States of
New York and New Jersey, pursuant to notice.

A P P E A R A N C E S (Via Remote where indicated):

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DAVID SHERECK, Videographer
Shereck Video Service

INDEX

WITNESS

EXAMINATION

CAROL L. OSLER, Ph.D.

BY MR. MOYE

11

BY MR. OPPENHEIMER

336

EXHIBITS

SEC

NUMBER

DESCRIPTION

PAGE

Exhibit 1

Expert Report of Professor

14

Carol L. Osler 10-4-21

NO BATES, 41 pages

Exhibit 2

Federal Reserve Bank of St.

174

Louis - Functions of Money

article dated 8-9-12

NO BATES, 4 pages

Exhibit 3

NBER Working Paper Series

175

Yermack Article 12/13

NO BATES, 16 pages

Exhibit 5

Declaration of Lawrence

237

Angelilli dated 3-14-21

NO BATES, 13 pages

EXHIBITS

SEC NUMBER	DESCRIPTION	PAGE
Exhibit 6	Rebuttal Report of [REDACTED] [REDACTED] dated 11-12-21 NO BATES, 73 pages	260
Exhibit 7	Amended Expert Rebuttal Report of [REDACTED] dated 11-16-21 NO BATES, 149 pages	263
Exhibit 8	Rebuttal Expert Report of Carol Osler dated 11-12-21 NO BATES, 20 pages	264
Exhibit 9	Expert Report of [REDACTED] [REDACTED] dated 10-4-21 NO BATES, 50 pages	296
Exhibit 10	"Free Working Capital with On-Demand Liquidity" NO BATES, 8 pages	223

EXHIBITS

SEC NUMBER	DESCRIPTION	PAGE
Exhibit 11	"The Environmental Impact: Cryptocurrency Mining vs. Consensus" 7-8-20 NO BATES, 5 pages	232
Exhibit 12	11-18-21 CoinDesk Article "Mexican Crypto Exchange [REDACTED] Incorporates Circle Solutions for Cross-Border Payments Initiative." NO BATES, 3 pages	254
Exhibit 13	"MoneyGram Partners with Ripple Competitor Stellar" NO BATES, 4 pages	254

*** EXHIBITS BOUND SEPARATELY ***

DEPOSITION SUPPORT INDEX

DIRECTION TO WITNESS NOT TO ANSWER

Page	Line
------	------

163	15
-----	----

242	13
-----	----

261	3
-----	---

STIPULATIONS

Page	Line
------	------

13	17
----	----

PORTION MARKED HIGHLY CONFIDENTIAL

Page	Line
------	------

- -none-	-
----------	---

REQUEST FOR DOCUMENTS

Page	Line
------	------

- -none-	-
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1 - - -

2 9:07 a.m.

3 December 21, 2021

4 - - -

5 THE VIDEOGRAPHER: Okay. We
6 are on the record. The time is
7 approximately 9:07 a.m. Today's date
8 is Tuesday, December 21st, 2021.

9 This is the video deposition of
10 Professor Carol Osler in the matter
11 of Securities and Exchange Commission
12 versus Ripple Labs, et al. Index
13 number is 20-Civ-10832 in the United
14 States District Court, Southern
15 District of New York.

16 My name is David Shereck,
17 certified legal videographer with Shereck
18 Video, in association with Gradillas
19 Court Reporting of Glendale, California.
20 We're located today at the office of
21 Debevoise & Plimpton located at 919 Third
22 Avenue, New York, New York.

23 All counsels will be present --
24 all counsels present will be noted on the
25 stenographic record.

1 And the court reporter today is
2 Bridget Lombardozzi, also with Gradillas.
3 And will you please swear in the witness.

4 C A R O L O S L E R, Ph.D,
5 having been duly sworn, was examined and
6 testified as follows:

7 THE REPORTER: Thank you.

8 You may proceed.

9 MR. MOYE: Good morning.

10 Should we get the appearances from
11 all of the witnesses -- from all the
12 attorneys? No. We've already done
13 that. All right.

14 DIRECT-EXAMINATION

15 BY MR. MOYE:

16 Q. I'm Robert Moyer representing the SEC
17 I'll be asking you the questions today. Let's
18 start out, can you tell me your name and spell it
19 for the record?

20 A. Carol L. Osler. C-A-R-O-L, L,
21 O-S-L-E-R.

22 Q. And where do you live?

23 A. I live in Framingham, Massachusetts.

24 Q. Have you ever been deposed before?

25 A. I have.

1 Q. How many times?

2 A. Twice.

3 Q. So this may be a review, but I want to
4 go over a few points about how we can make a good
5 record here today of your testimony.

6 The first thing I'd like to remind you
7 is to please let me -- wait for me to finish my
8 question before you begin your answer. I will try
9 to do the same for your answers.

10 Second, from time to time counsel in the
11 room may make an objection. When that happens, I
12 have a choice: I can rephrase my question or I
13 can ask you to go ahead and answer the pending
14 question.

15 If you don't remember the pending
16 question, we can have it read back.

17 Is that all right?

18 A. That's fine.

19 Q. Finally, if there's a question that you
20 think is unclear, please ask me to clarify because
21 if you go ahead and answer a question that I ask
22 with the misunderstanding present, we may not know
23 that that happens. However, if you realize later
24 that you've misunderstood one of my questions and
25 need to add to or change one of your answers, you

1 can do that, but please let me know that you want
2 to do that so we can finish the pending question.

3 Is that all right?

4 A. Yes.

5 Q. And, finally, when I hand you a
6 document, I will direct you to that portion of the
7 document that I'm interested in. So you don't
8 need to read the entire document before I can
9 begin my question, but obviously if there are
10 other parts of the document that you want to refer
11 to before you begin your answer, that's fine as
12 well. But I think it will go smoother if I give
13 you an exhibit and tell you where I'm going to go.

14 Is that okay?

15 A. Yes.

16 Q. All right.

17 MR. OPPENHEIMER: Counsel,
18 before you start, let me just put on
19 the record our existing practice that
20 an objection by one defendant is an
21 objection by all.

22 MR. MOYE: Yes, that's
23 acceptable.

24 MR. OPPENHEIMER: Thank you.

25 Q. And is it okay if I refer to you as

1 Professor Osler?

2 A. It is.

3 Q. All right. Professor, I'm going to hand
4 you what's been marked as Exhibit 1.

5 A. Thank you.

6 (Whereupon, exhibit is received
7 and marked SEC Osler Deposition Exhibit 1
8 for identification.)

9 BY MR. MOYE:

10 Q. Can you let me know if you recognize
11 Exhibit 1?

12 A. I do.

13 Q. What is Exhibit 1?

14 A. It is my expert report.

15 Q. Your initial report in this matter?

16 A. My initial report.

17 Q. Okay. That was issued on October 4th,
18 more or less?

19 A. Yes, more or less.

20 Q. Okay. Does your initial report have any
21 exhibits?

22 A. It does.

23 Q. Okay. So I'd like to direct your
24 attention to Exhibit A.

25 Can you tell me in your own words, what

1 is Exhibit A? What kind of information it
2 contains.

3 A. It's my curriculum vitae, so it has my
4 education, my employment history, my publication
5 history, my teaching and my thesis -- thesis
6 committee participation and the like.

7 Q. Okay. So I'd like to review your
8 academic experience. Can you tell me where you
9 went to undergraduate?

10 A. I went to Swarthmore College in
11 Pennsylvania.

12 Q. And you got a bachelor's in economics?

13 A. I did.

14 Q. When did that occur? When did you get
15 that degree?

16 A. The degree was in 1980.

17 Q. Okay. May be an obvious question, but
18 when you were studying in your undergraduate
19 degree, did you study cryptocurrencies?

20 A. No, I didn't.

21 Q. All right. Where did you get -- where
22 did you study for your master's degree?

23 A. My -- my master's and my Ph.D. came from
24 Princeton University in New Jersey.

25 Q. Okay. And when did you receive your

1 master's?

2 A. My master's would have been, I believe,
3 1983.

4 Q. Similar question as before: When you
5 studied for your master's degree, did you have the
6 occasion or opportunity to study cryptocurrencies?

7 A. I studied monetary theory but not
8 cryptocurrencies.

9 Q. And that's because cryptocurrencies, as
10 we know them now, didn't exist back then?

11 A. That's true.

12 Q. When did you receive your Ph.D.?

13 A. 1987.

14 Q. I'm sorry, '86 or '87?

15 A. '87.

16 Q. And when you were studying for your
17 Ph.D., was it also true that cryptocurrencies did
18 not exist and so you did not have the opportunity
19 to study them?

20 A. That's correct.

21 MR. OPPENHEIMER: Objection
22 to form.

23 Q. You can answer.

24 MR. OPPENHEIMER: You can
25 answer.

1 A. That's correct.

2 Q. All right. You're teaching out at
3 Brandeis University, correct?

4 A. Yes.

5 Q. I mean, not today.

6 A. Right.

7 Q. But you're employed at Brandeis?

8 A. I am employed at Brandeis.

9 Q. All right. Let's talk about some of
10 your prior teaching experience.

11 You previously taught at Dartmouth
12 College?

13 A. Yes.

14 Q. During what period of time?

15 A. From 1985 to 1991. I believe that was
16 '91.

17 Q. At that time did you teach any courses
18 that involved the use of cryptocurrencies in
19 exchanges or foreign exchange trade?

20 THE REPORTER: In exchanges?

21 MR. MOYE: Or foreign
22 exchange trade.

23 A. I certainly taught about the nature of
24 money but I did not discuss cryptocurrencies.

25 Q. And, again, why not?

1 A. Because they did not exist.

2 Q. And you also taught at Northwestern
3 University, is that true?

4 A. Yes, I did.

5 Q. During what period of time?

6 A. I taught as a visiting assistant
7 professor in the -- around 1990 twice.

8 Q. In succession or -- or --

9 A. No, there was a gap between. About a
10 semester, I believe.

11 Q. Okay. And so back in 1990, did you have
12 the opportunity to teach any courses about the use
13 of cryptocurrency in the foreign currency exchange
14 markets?

15 A. I taught about currency trading
16 extensively, which is my area of expertise. I did
17 not specifically mention cryptocurrencies.

18 Q. And why not?

19 A. Because they didn't exist at the time.

20 Q. And when did you teach at Columbia?

21 A. I taught at Columbia in the early 1990s,
22 shortly after I arrived at the Federal Reserve
23 Bank of New York where I worked for about a decade
24 as a macroeconomist -- for much of that period as
25 a macroeconomist, international macroeconomist.

1 Q. All right. So you're talking about the
2 Federal Reserve. How about at Columbia?

3 A. At Columbia I taught monetary theory to
4 undergraduates and I taught something essentially
5 the same to graduates in -- yeah.

6 Q. How long were you at Columbia?

7 A. I believe it was about -- I believe I
8 taught there roughly three years.

9 Q. From '93 to '96? Does that sound right?

10 A. That sounds pretty good.

11 Q. It's listed in your professional
12 experience with that. You're --

13 A. Okay.

14 Q. Feel free to refer to that if that helps
15 you. If that doesn't help you --

16 A. Thank you. Okay.

17 Q. So I'm looking at the first page under
18 "Professional Experience."

19 A. And I'm sure when I put that down, I had
20 sat down to figure it out.

21 Q. Okay. That's what we're going to go
22 with, '93 to '96.

23 So same question as I've asked you
24 previously: Did cryptocurrencies exist back in
25 1993 or 1996?

1 A. No, they didn't.

2 Q. Okay. So you would not have had the
3 opportunity at Columbia to discuss or teach those
4 topics to your students, is that right?

5 A. I certainly taught about currencies at
6 great length.

7 Q. I was asking about cryptocurrencies.

8 A. I did not specifically mention
9 cryptocurrencies. There are many currencies and I
10 don't always mention them all. But in any case,
11 at that time, cryptocurrencies did not exist.

12 Q. Okay. And you hadn't anticipated their
13 existence, is that fair to say? You personally.

14 MR. OPPENHEIMER: Objection
15 to form.

16 A. I'm just thinking about your question.
17 You know, I don't even remember what I thought
18 about back then. It's a very long time.

19 Q. All right. So you've been -- you've
20 been at Brandeis University teaching for about the
21 last 19 years. Is that -- is that close?

22 A. That's close.

23 Q. Okay. And according to your bio in
24 Exhibit 1, you teach courses on behavioral
25 finance, financial market structure and trading

1 process, and applied macroeconomic analysis, is
2 that right?

3 A. Yes. And in macroeconomics, we discuss
4 the nature of currencies and in my trading class,
5 we discuss the trading of currencies.

6 Q. Okay. In any of the courses that you've
7 been teaching at Brandeis, do you focus
8 specifically on cryptocurrencies?

9 MR. OPPENHEIMER: Objection
10 to form.

11 You can answer.

12 A. I -- let's see. Give me an opportunity
13 to think about this.

14 I discussed it in my behavioral finance
15 class. They came up as a topic along the way.

16 Q. So let's explore that for a minute.

17 When you say "discussed," is that the
18 focus during the semester or was that something
19 that came up on one day during one class
20 discussion? How would you describe it?

21 MR. OPPENHEIMER: Objection
22 to form.

23 You can answer.

24 A. I would describe it as a topic I raised
25 on one day.

1 Q. Okay. And is it a topic that was the
2 subject of research by your students leading to an
3 assignment or an exam or was it -- was it
4 something that you tested on or was it more --
5 yeah. What did you do in connection with that
6 discussion?

7 MR. OPPENHEIMER: Objection

8 --

9 Q. Was there any additional outside work or
10 research?

11 MR. OPPENHEIMER: Objection

12 to form.

13 Q. You can answer.

14 A. I did not have the students do anything
15 about it, but of course my understanding of
16 cryptocurrencies is informed by my own research.

17 Q. Prior to Brandeis University, so I guess
18 focusing mostly on Federal Reserve and your other
19 teaching, has any of your professional employment
20 focused on the use of cryptocurrencies either in
21 connection with foreign exchange trading or in any
22 other way?

23 A. No.

24 Q. In your research at Brandeis, according
25 to your bio, your research is focused on exchange

1 rates and foreign exchange trade. I realize you
2 do a lot of research.

3 But is that a fair summary of your --
4 some of the topics of your research at Brandeis?

5 MR. OPPENHEIMER: Objection
6 to form.

7 You can answer.

8 A. There has been an important secondary
9 focus, which is on behavioral matters in finance.
10 And most recently I have expanded my study of
11 currency trading to include cryptocurrencies.

12 Q. So just looking at the past, maybe the
13 more distant past instead of the present, would it
14 be fair to say that your research at Brandeis has
15 not focused on the use of cryptocurrencies in the
16 foreign exchange trade market?

17 MR. OPPENHEIMER: Objection
18 to form.

19 You can answer.

20 A. I'd say that my most recent research has
21 definitely included cryptocurrencies.

22 Q. Let's flip that around.

23 Except for your most recent research,
24 would it be fair to say that your other 18- or
25 17-plus years at Brandeis has not focused on

1 cryptocurrencies in the foreign exchange trade
2 trading markets?

3 A. That would --

4 MR. OPPENHEIMER: Objection.

5 You can answer.

6 A. That would be fair to say.

7 Q. Have you published any papers dealing
8 with cryptocurrency trading?

9 A. I have not published any papers on it.

10 Q. Are you currently working on any papers
11 either by yourself or with someone else regarding
12 use of cryptocurrency?

13 A. Yes.

14 Q. Okay. Is that the "Private
15 Non-fundamental Information in Adverse-Selection
16 of Cryptocurrencies" paper?

17 A. Yes, it is.

18 Q. Okay. Who's your co-author?

19 A. Shuran Zhang.

20 Q. And who is Shuran Zhang?

21 A. He is a graduate of Brandeis Ph.D.
22 program and I chaired his thesis committee.

23 Q. So he's a Ph.D. recipient?

24 A. Yes.

25 Q. He currently teaches at Brandeis?

1 A. Shuran Zhang? No.

2 Q. Okay. Where -- do you know where he is
3 now?

4 A. Yes. He lives in Utah.

5 Q. Okay. Why don't we help the court
6 reporter by spelling Shuran Zhang.

7 A. Sure.

8 Q. Do I have this right? S-H-U-R-A-N,
9 Z-H-A-N-G?

10 A. Yes.

11 Q. All right. And thanks for helping with
12 the pronunciation.

13 So you confirmed the title of the paper,
14 but could you explain for noneconomists, what is
15 the thesis of the paper? What is it that the
16 paper's trying to establish or study?

17 MR. OPPENHEIMER: Objection
18 to form.

19 You can answer.

20 A. The paper is interested in the
21 communication of information within a given trade
22 and the nature of that information. And I'm using
23 cryptocurrency as a lens through which to
24 understand all currencies. And so -- and, in
25 fact, all trading. So all financial -- active

1 financial active trading.

2 So economists have -- financial
3 economists. A major topic in the financial
4 economics literature over the past 35 years has
5 involved the question: What if someone in a given
6 trading -- in a given trade knows more about the
7 future value of a -- of the asset than -- than
8 someone else? And we call that asymmetric
9 information.

10 And the question is: What happens --
11 and another important question is: What's the
12 nature of that information? And my paper looks at
13 the nature of information that might be
14 communicated within a trade.

15 Q. What does the technical term "adverse
16 selection" mean?

17 A. Let me think a bit so I can say it
18 concisely for you.

19 Excuse me.

20 Adverse selection refers to a situation
21 of asymmetric information, where one person knows
22 more than another, and it refers to a situation in
23 which the person who does not have the information
24 will only experience an adverse outcome with
25 respect to the person who does have the

1 information.

2 Q. So in connection with this paper, who
3 has the adverse selection problem or the asymmetry
4 of information with regard to cryptocurrencies?

5 MR. OPPENHEIMER: Objection
6 to form.

7 You can answer.

8 Q. Just generally.

9 MR. OPPENHEIMER: Same
10 objection.

11 A. Let me just formulate an answer for you.
12 We -- the person purchasing.

13 Q. Okay. Do you view this recent research
14 in any way as relevant to the expert opinion
15 you've given in this case?

16 MR. OPPENHEIMER: Objection
17 to form.

18 You can answer.

19 A. I will answer, but I just realized that
20 I was too narrow in my previous response, so I'd
21 like to clarify that after I answer.

22 Could you repeat the question, the
23 current question?

24 MR. MOYE: Could you read it
25 back?

1 (Whereupon, the record was read
2 back.)

3 A. That's -- I -- I review the research as
4 having helped enrich my understanding of
5 cryptocurrencies broadly and the specific topic of
6 the research is not directly relevant to this.

7 Q. Are you going to produce a copy of that
8 paper?

9 MR. OPPENHEIMER: Can we --
10 can we clarify that other answer she
11 wanted to expand on?

12 THE WITNESS: Oh, yes.

13 MR. MOYE: Yes, right after
14 she tells me.

15 Q. Are you willing to produce a copy of the
16 paper so that we can study it?

17 A. Absolutely.

18 MR. OPPENHEIMER: Objection.

19 You can answer.

20 A. Okay. I believe it's available.

21 Q. Well, I haven't been able to get it.

22 A. Okay.

23 Q. So I'd appreciate it if your counsel
24 could provide us a copy.

25 A. Okay. Okay.

1 Q. So why don't you go back and clarify the
2 answer that you wanted to clarify.

3 A. Yes. So you had asked me who would be
4 adversely selected in a currency trade or -- yeah,
5 in a financial market trade. And I had specified
6 that it was the purchaser. More accurately, it's
7 the liquidity provider, whether the liquidity
8 provider is buying or selling. It's whoever is
9 providing liquidity on the trade.

10 Q. Are you saying the ultimate purchasers
11 do not suffer in any way from the adverse
12 selection problem?

13 MR. OPPENHEIMER: Objection
14 to form.

15 A. I'm not sure I see the relationship
16 between your question and what we've been talking
17 about.

18 Q. That's fine. If you can't answer, we
19 can move on.

20 MR. OPPENHEIMER: Objection.

21 A. Let me put it this way: Your question
22 is confusing to me and I would welcome a
23 clarification.

24 Q. Okay. I was trying to ask if the
25 ultimate purchasers of cryptocurrency, the

1 individuals that purchase it, are they ever
2 subject to the adverse selection problem which is
3 the same or similar to what you described in this
4 paper?

5 MR. OPPENHEIMER: Objection
6 to form.

7 You can answer.

8 A. We're going an awfully long way here
9 between what's in my paper and individual traders.
10 So we'd have to examine the links carefully. And
11 the paper is completely unspecific about who these
12 traders are.

13 Q. Okay. So as of right now, you're not
14 sure how you would answer my question.

15 Is that fair?

16 MR. OPPENHEIMER: Objection
17 to the form.

18 You can answer if you
19 understand that.

20 A. I -- I would like to clarify that until
21 the question is clarified, I cannot provide an
22 answer.

23 Q. All right. So if the paper was here, we
24 might be able to do that, but why don't we move on
25 to another area of discussion.

1 I'd like you to look at the list of your
2 publications which is at the bottom of page 2 in
3 your bio or your CV. And I believe it continues
4 onto page 3 and 4.

5 So I'm mostly focused on recent
6 publications, but obviously if you feel it's
7 irrelevant, you can tell me.

8 A. Uh-huh.

9 Q. As far as you know, is this list of
10 publications complete?

11 A. As far as I know.

12 Q. Okay. There's been nothing recent in
13 the past month or so that didn't make it onto the
14 CV?

15 A. No.

16 Q. Okay. So it looks like, looking at the
17 bottom of page 2, you published an article in 2021
18 titled "Price Discovery in Two-Tier Markets," is
19 that right?

20 A. Yes.

21 Q. And then turning on to the next page, it
22 looks like your next most recent publication, "The
23 Market Microstructure Approach to Foreign
24 Exchange," was published in 2013, is that correct?

25 A. That's correct.

1 Q. So between 2021 and 2013, were there any
2 academic publications?

3 A. There were no academic publications.

4 Q. Now, I know that you've written several
5 times for popular audience. Are those
6 publications listed under your other publication
7 section?

8 A. Yes.

9 Q. Okay. And you've also been part of
10 several working papers, is that correct?

11 A. Yes.

12 Q. And those are listed in the "Working
13 Papers" section on page 4, is that right?

14 A. Let me just check. There's some --
15 there -- yeah, that's about right.

16 Q. Okay. So bottom of page 4, top of page
17 5, shows what you've been working on but has not
18 ultimately been published, is that fair?

19 A. That's correct.

20 Q. Okay. Is it -- is that section complete
21 in terms of what you've been working on but not
22 yet published?

23 MR. OPPENHEIMER: Objection
24 to form.

25 A. In terms of working papers, that's

1 correct.

2 Q. All right. Would it be fair to say,
3 Professor Osler, that between the period of 2013
4 and the present, so 2021, you were focused on --
5 you were more focused on expert engagements than
6 in publishing your academic research?

7 MR. OPPENHEIMER: Objection
8 to form.

9 A. No.

10 Q. No. Okay.
11 Can you tell me how many academ -- how
12 many expert engagements you've worked on between
13 2013 and 2021?

14 A. I don't have the number handy, but it's
15 important to know that I have been doing extensive
16 administrative work at the university.

17 Q. Let's talk about that.

18 You have a lot of -- I don't know if
19 they're management or supervisory
20 responsibilities.

21 How would you describe your current load
22 of responsibilities at Brandeis?

23 A. Quite extensive. I chair the faculty
24 senate. And for about four years in there, I was
25 co-chair of a task force intending to design

1 workplace bullying policies.

2 THE REPORTER: Workplace
3 billing?

4 THE WITNESS: I'm sorry.
5 Bullying.

6 THE REPORTER: Thank you.

7 BY THE REPORTER:

8 Q. And then, of course, you work with
9 students, including Ph.D. students --

10 A. Uh-huh.

11 Q. -- and you serve on committees?

12 THE REPORTER: Repeat.

13 Q. Am I correct that you also work with
14 students, including Ph.D. students, and you serve
15 on their dissertation committees?

16 A. That's correct.

17 Q. Okay. Why don't we look at the expert
18 section of your bio. So this is going to start at
19 the bottom of page 1 and go onto the top of page
20 2.

21 Would you take a moment to yourself,
22 read through the case names, engagements that you
23 worked on, and let me know when you're done.

24 A. I'm done.

25 Q. Okay. So by my count that's 11 expert

1 engagements. Math's not my main subject, so I
2 could be off by one or two.

3 Does that sound about right?

4 A. Sounds about right.

5 Q. Okay. Are there others -- as you read
6 through, did you notice any other expert
7 engagements that you've worked on that are not
8 listed here?

9 A. No.

10 Q. Do these engagements include matters on
11 which you acted as a consultant but never actually
12 offered an expert opinion?

13 A. Yes, they do.

14 Q. Okay. So we could be reasonably
15 confident that if you worked in connection with
16 any sort of litigation, it's listed in this
17 engagement section. Is that fair?

18 A. Reason --

19 MR. OPPENHEIMER: Objection.

20 You can answer.

21 A. Reasonably confident.

22 Q. All right. And does this professional
23 experience list any other matters in which you're
24 currently acting as an expert or preparing to
25 issue an expert opinion?

1 A. Yes. Well, I am not -- so, no, I am not
2 preparing to provide an opinion -- no, there's
3 one. There's one that I am preparing to provide
4 an opinion.

5 Q. Which law firm are you working with?
6 Can you tell us?

7 A. Siskinds in Canada.

8 Q. And what type of case is that? Just a
9 general is fine.

10 MR. OPPENHEIMER: Objection.

11 You can answer.

12 A. It's bonds.

13 Q. Okay. So besides the bond case with
14 Siskinds and besides this case which is also not
15 listed for obvious reasons, there's no other
16 consulting engagement that -- that you have that
17 you're working on.

18 Is that fair?

19 A. No. There is a third that is -- let's
20 see; listed here as 2017 to present, Maurice
21 Blackburn in Australia.

22 I speak with these people, yeah. So
23 there's that.

24 I am not actively preparing anything for
25 them at the moment.

1 Q. Okay. Besides the Ripple case which
2 brings us here today, have any of these other
3 expert engagements required you to issue an
4 opinion regarding cryptocurrencies?

5 A. No.

6 Q. Did any of these expert or consulting
7 engagements require you to look at or study
8 cryptocurrency issues?

9 MR. OPPENHEIMER: Objection
10 to form.

11 You can answer.

12 A. Not that I recall.

13 Q. How many times have you testified as an
14 expert in court?

15 Let me rephrase that.

16 Have you testified as an expert in a
17 court proceeding, in a trial or hearing?

18 MR. OPPENHEIMER: Objection
19 to form.

20 You can answer.

21 A. No.

22 Q. Okay. How many times have you testified
23 in a deposition prior to today?

24 A. Two.

25 Q. Okay. And which matters? Which expert

1 engagements were those?

2 A. Let's see. Chris Staines/Royal Bank of
3 Canada and Axiom Investment Advisors, LLC versus
4 Deutsche Bank.

5 Q. And in the Mancinelli case, did you give
6 courtroom or deposition testimony?

7 A. The case had not proceeded that far.

8 Q. There was a published opinion which
9 talks about your contributions to that case,
10 whether or not you're aware of that. So I'm just
11 asking about Mancinelli.

12 A. The bond case?

13 Q. This would be the one in Canada.

14 A. There's -- I've worked -- the Canadians
15 like me.

16 Q. I'm glad to hear that. So I'm asking
17 you about the Canadian case --

18 A. Mancinelli is about bonds and my bond
19 report is not final.

20 Q. So if I ask you whether you issued three
21 different written opinions in the Mancinelli case
22 and that the court considered both those written
23 opinions and written challenges to your case -- to
24 your opinions by Nick Weir and another individual,
25 would that refresh your recollection about whether

1 you have or have not given testimony in the
2 Mancinelli case?

3 MR. OPPENHEIMER: Objection
4 to form.

5 You can answer.

6 Q. If that's helpful.

7 MR. OPPENHEIMER: You can
8 answer.

9 A. I wonder if there's a confusion
10 somewhere in here on the specific names of the
11 cases. What you describe I believe applies to the
12 case -- the foreign exchange case that I dealt
13 which is listed here as Chris Staines versus Royal
14 Bank of Canada. So I believe that's where what
15 you described occurred.

16 Q. Okay. All right. Thanks for that
17 clarification.

18 Has a court ever considered whether to
19 accept your opinion as an expert and either
20 accepted it or rejected it?

21 MR. OPPENHEIMER: Objection
22 to form.

23 You can answer.

24 A. I will need some clarification.

25 Q. Okay. So when experts' opinions are

1 submitted in litigation, the parties work with
2 them. They study them. Sometimes there's
3 depositions like today. But usually at a later
4 point in a proceeding, the court has the
5 opportunity to look at them if the case goes that
6 far and doesn't settle or -- or be dismissed.

7 THE REPORTER: Or?

8 MR. MOYE: Or be dismissed.

9 Q. So I'm asking if you've ever -- if you
10 know, whether any of your opinions have been ever
11 submitted on summary judgment or accepted at a
12 trial or a hearing where the court considered them
13 on the merits?

14 MR. OPPENHEIMER: Objection

15 to form.

16 You can answer.

17 A. So -- so I think it would be helpful to
18 outline the procedure in Canada. So in Canada
19 where I have worked on -- I'm now working on my
20 fourth case. The first thing -- what I have
21 produced are documents describing a methodology
22 for calculating damages, which is the first
23 required step. And that has to go to a court and
24 be accepted on the merits.

25 So in that sense, yes, they have been

1 presented to court and been accepted.

2 Q. So you believe they've been relied upon
3 by a court in calculating damages?

4 MR. OPPENHEIMER: Objection
5 to form; mischaracterizes testimony.

6 You can answer.

7 A. That mischaracterizes my testimony.

8 Q. Please -- please clarify.

9 A. Okay.

10 Q. What has the court done in Canada with
11 your opinions as far as you know?

12 A. So when the methodology document is
13 describe -- is presented and taken at -- as
14 accepted, then the class action goes forward.

15 Q. So do you know if there's any court
16 opinion, either in writing or given orally, where
17 a court has said I looked at Professor Osler's
18 methodology and I agree with it and we're going to
19 use it in this case or I disagree with it, in
20 whole or in part, and we're not going to accept
21 all of it?

22 MR. OPPENHEIMER: Objection
23 to form.

24 You can answer.

25 A. There was a document probably in the

1 foreign exchange Canada case where the judge had a
2 paragraph about my statement that was interpreted
3 by counsel as -- the judge was not speaking highly
4 of the other side.

5 Q. And sitting here today, can you recall
6 what case that was?

7 MR. OPPENHEIMER: Objection.

8 You can answer.

9 A. I couldn't be specific, no.

10 Q. All right. So we can set these expert
11 engagements aside for now.

12 Do you have any personal experience
13 which is relevant to the subjects on which you
14 rendered expert opinions in this case?

15 MR. OPPENHEIMER: Objection
16 to form.

17 You can answer.

18 A. That's very broad.

19 Q. All right. Let me clarify.

20 Do you have any personal experience in
21 trading or investing in cryptocurrencies?

22 A. In cryptocurrencies? No.

23 Q. Have you ever paid for any good or
24 service using cryptocurrencies?

25 A. No, I have not.

1 Q. Have you ever been paid for any good or
2 service you provided using a cryptocurrency?

3 A. No.

4 Q. Would that include this engagement?

5 A. Yes.

6 Q. Okay. Fair to say for your professional
7 services in this case, you've not been paid in XRP
8 or any other cryptocurrency?

9 MR. OPPENHEIMER: Objection

10 to form.

11 You can answer.

12 A. My professional services are based on my
13 expertise as an economist knowing about currencies
14 and macroeconomics and the money supply process.
15 And so there was no need for me to engage in such
16 activities in order to prepare for this case.

17 Q. All right. I'm actually asking you a
18 slightly different question.

19 When Ripple pays your bills or whoever
20 law firm -- whichever entity pays your bills, do
21 they pay you in U.S. dollars or in a
22 cryptocurrency?

23 A. Counsel pays me in dollars.

24 Q. Okay. Do you have any personal
25 experience in making cross-border currency

1 payments?

2 MR. OPPENHEIMER: Objection

3 to form.

4 You can answer.

5 A. No.

6 Q. Have you ever used MoneyGram?

7 A. I have not.

8 Q. Have you ever used [REDACTED]

9 A. I have not used [REDACTED]

10 Q. Have you ever used any other service

11 that was intended to transfer money from the

12 country where you were to a different country?

13 MR. OPPENHEIMER: Objection

14 to form.

15 You can answer.

16 A. So I'd like to answer that question and

17 then put a clarification in about an earlier

18 answer.

19 Q. Sure.

20 A. So I have not intended to simply

21 transfer, as in make a gift, of money across

22 borders. The -- the question have I ever paid for

23 something internationally? That's -- I had said

24 no, but I have bought things internationally

25 online.

1 Q. Using different currencies?

2 A. Yeah.

3 Q. That -- that would involve a currency
4 exchange?

5 A. Yes, that --

6 Q. Okay.

7 A. -- would involve a currency exchange.

8 Q. But as far as you know, did any of those
9 foreign purchases that may have required the use
10 of a different currency involve cryptocurrencies
11 at any point?

12 A. Not as far as I know.

13 Q. Professor Osler, how did you prepare for
14 your deposition today? What are the things you
15 did?

16 MR. OPPENHEIMER: Objection.

17 You can answer. You should not
18 reveal the substance of any
19 communications you had with counsel.

20 A. Well, I was about to say I read and
21 reread the -- the important documents, the -- the
22 reports and the rebuttals. And I spoke with
23 counsel.

24 Q. Okay. Which reports and rebuttals did
25 you review?

1 A. The report of myself and Mr. [REDACTED] and
2 the rebuttals of Mr. [REDACTED] and Mr. [REDACTED]

3 Q. Okay. And --

4 A. And my only rebuttal to Mr. [REDACTED]

5 Q. Okay. So let's spell [REDACTED] [REDACTED],
6 is that right? Is that right?

7 A. Yes.

8 Q. Okay.

9 A. He's your expert, so...

10 Q. Well, you responded to him, so I hope
11 you looked at his name at least once.

12 A. Yes, I did.

13 Q. How often -- how many times did you meet
14 with counsel? Well, I guess that presumes
15 something.

16 Did you meet in person or by video with
17 counsel?

18 MR. OPPENHEIMER: You can
19 answer yes or no.

20 A. Yes.

21 Q. How many times? And, again, this is in
22 preparation for this deposition, not in connection
23 with the issuance of your reports.

24 A. We had four -- four -- basically four
25 meetings.

1 Q. Okay. And approximately how long were
2 these meetings, more or less?

3 A. I'd say, on average, they were about two
4 hours.

5 Q. Okay. And aside from the ones you
6 named, your own reports, [REDACTED] and [REDACTED] did
7 you review any other expert reports in this
8 matter?

9 MR. OPPENHEIMER: Objection
10 to form.

11 You can answer.

12 A. No.

13 Q. In preparation for this deposition, did
14 you review any other academic articles or
15 documents from this case?

16 A. Please clarify "documents from this
17 case."

18 Q. Yeah. Documents produced by Ripple to
19 the SEC, discovery -- written discovery responses,
20 briefs or submissions by the parties to the court.
21 Anything -- anything that's not an expert report
22 that's been produced in this case.

23 A. No.

24 Q. And did you review any other materials
25 or publications in order to prepare -- that you

1 haven't already named in order to prepare for your
2 deposition today?

3 MR. OPPENHEIMER: Objection
4 to form.

5 You can answer.

6 A. I went online and gathered some more
7 information.

8 Q. What were you looking for online?

9 MR. OPPENHEIMER: Objection
10 to form.

11 You can answer.

12 A. I looked up recent daily trading in XRP.
13 I -- and -- what else did I look up? Oh, no, I'm
14 sitting here and it's, like, just not coming to
15 mind. Things like that. Okay.

16 Q. As we dis -- as we go further, if you
17 have occasion to recall, if you're prompted to
18 recall things that you --

19 A. Uh-huh.

20 Q. -- did specifically to prepare for your
21 deposition --

22 A. Uh-huh.

23 Q. -- any materials you looked at, will you
24 please let me know and I'll give you a chance to
25 explain?

1 A. Sure.

2 Q. Okay. So let's go back a little bit in
3 time, so we're not talking about deposition prep.
4 Let's talk about your work as an expert on this
5 case.

6 When did you begin your work as an
7 expert in this engagement?

8 A. I began my work in mid-August.

9 Q. Of 2021?

10 A. Yes.

11 Q. Okay. Approximately how long before --
12 did you work before -- between the beginning and
13 when your report was submitted? Was it about a
14 month and a half?

15 MR. OPPENHEIMER: Objection
16 to form.

17 You can answer.

18 A. Closer to two months, I believe.

19 Q. Okay. So is it possible you began
20 working in early August if your report was
21 submitted in -- on October 4th?

22 A. Yeah.

23 MR. OPPENHEIMER: Objection
24 to form.

25 A. To be clear, I -- the engagement did not

1 begin until the beginning of August.

2 Q. Okay. Did you sign a contract or
3 engagement letter?

4 A. I did.

5 Q. And was that with Ripple or with a law
6 firm?

7 A. With counsel.

8 Q. Which law firm?

9 A. Kellogg Hansen.

10 Q. And I think you indicated before, is it
11 Kellogg that's responsible for paying your fees?

12 A. Yes.

13 Q. Okay. Is Kellogg -- does Ripple also
14 get a copy of your bills or do you not know?

15 A. I do not know.

16 Q. Your billing rate in this case is \$600
17 per hour, is that right?

18 A. That's correct.

19 Q. Would that be the same for testimony as
20 well as for your study and preparation?

21 A. Yes.

22 Q. And approximately how much have you been
23 paid or received to date for your work on this
24 case?

25 MR. OPPENHEIMER: Objection

1 to form.

2 You can answer.

3 A. Okay. I have received to date a little
4 bit more than \$90,000.

5 Q. And how much else have you billed or
6 incurred to date but not yet been paid?

7 MR. OPPENHEIMER: Objection
8 to form.

9 You can answer.

10 A. I don't -- I don't know.

11 Q. Okay. Would it be \$90,000 or something
12 less?

13 MR. OPPENHEIMER: Objection.

14 A. I -- I don't -- I just don't know.

15 Q. So it could be more than 90,000?

16 MR. OPPENHEIMER: Objection.

17 You can answer.

18 A. It could be.

19 Q. Okay. Let's try to break it down a
20 little bit.

21 For what you've been paid so far, do you
22 believe that included the work for your initial
23 report?

24 A. It did.

25 Q. For what you've been paid so far, did it

1 include the work for your rebuttal report which
2 was submitted in mid-November?

3 A. It did not.

4 Q. Okay. And so would it be fair to say
5 that it could not have included the work -- any of
6 the work you did to prepare for this deposition or
7 to study other expert reports and rebuttals?

8 MR. OPPENHEIMER: Objection
9 to form.

10 You can answer.

11 A. That's correct.

12 Q. Okay. So would you agree that there's a
13 good chance that the work that you've done but not
14 yet been paid for could be equal to or even exceed
15 \$90,000?

16 MR. OPPENHEIMER: Objection
17 to form.

18 You can answer.

19 A. I -- I -- I have not sat down to
20 calculate this and so I couldn't tell you.

21 Q. All right. That's fine.

22 Did you work with anyone else in this
23 engagement in preparing your report other than
24 counsel?

25 A. No.

1 Q. Did you receive assistance from any
2 other experts, students, employees, or
3 contractors?

4 A. No.

5 Q. Do you know whether anyone besides you
6 and counsel read your reports before you signed
7 them and issued them?

8 A. Yes, I do know.

9 Q. Who else read your reports?

10 A. Excuse me. You asked me do I know and I
11 said I do know. And what I know is that no one
12 read it.

13 Q. Thank you. That's an important
14 clarification. I apologize for that.

15 How do you know that no one else read
16 your reports besides counsel?

17 A. They were on my laptop and no one has
18 access to it.

19 Q. Okay. Did you send copies of your
20 reports, for instance, to someone and they could
21 have sent them to Ripple or to other experts or
22 other lawyers working in this case?

23 A. No.

24 MR. OPPENHEIMER: Objection
25 to form.

1 Q. All right. Before you began working in
2 this case in August of 2021, were you familiar
3 with either Ripple or with XRP?

4 MR. OPPENHEIMER: Objection.

5 You can answer.

6 A. No.

7 Q. As far as you remember, before you re --
8 you were retained or were approached to be
9 retained in this case, did you know anything about
10 this litigation that the SEC's brought against
11 Ripple?

12 A. I did not know.

13 Q. Prior to your retention by Kellogg, have
14 you ever worked with any of the defendants'
15 attorneys or law firms in this case?

16 A. I have not.

17 Q. So after -- after your retention as an
18 expert but before you issued your initial report
19 in early October, what documents did you review
20 to -- to learn about or understand the claims that
21 are at issue in this case? Did you read anything
22 about the SEC's claims?

23 MR. OPPENHEIMER: Objection

24 to form.

25 You can answer.

1 A. The documents that I reviewed and that I
2 relied on in creating my report are listed in the
3 report. And so the ones that come to mind
4 immediately are white papers describing the -- the
5 voting protocol for solving the Byzantine Generals
6 Problem, some Ripple documents online. If you --
7 yeah. They're listed in the report and, you know,
8 the list goes on, so we could look at it.

9 Q. Did you read the amended complaint, the
10 SEC's amended complaint?

11 A. Yes. Yes, I did. I did.

12 Q. Okay. Did you read any of the SEC's
13 discovery responses in this case?

14 A. No.

15 Q. Did you read any of the defendants'
16 discovery responses in this case?

17 A. No.

18 Q. Did you read any deposition transcripts
19 or testimony?

20 A. No.

21 Q. Did you have any discussions, either in
22 person or online, with Ripple employees or
23 attorneys retained directly by the company?

24 MR. OPPENHEIMER: Objection

25 to form.

1 MR. MOYE: Let me clarify.

2 Q. Did you have any discussions, either in
3 person or by telephone or online, with employees
4 of Ripple or attorneys who work for the company
5 Ripple at Ripple?

6 MR. OPPENHEIMER: Objection
7 to form.

8 You can answer yes or no if you
9 know.

10 A. No.

11 Q. Did you read any draft reports of other
12 experts before you finalized your own?

13 A. No.

14 Q. Did you discuss with any other expert
15 retained by the defendants the subject of their
16 reports before you issued your own?

17 A. No.

18 Q. And aside from those things that are
19 footnoted and mentioned in your own initial
20 report, did you read any other written narratives
21 or descriptions about Ripple, the company, or
22 about XRP?

23 A. The documents that were --

24 MR. OPPENHEIMER: Objection
25 to form.

1 You can answer.

2 A. The documents that were critical to
3 forming my opinions are all listed.

4 Q. Okay. Your report uses the phrase
5 "considered or relied upon," so I'd like to
6 explore that a minute.

7 Would it be fair to say, then, that your
8 report may not, in fact, list certain documents or
9 materials that you looked at before you finished
10 your report in this case?

11 MR. OPPENHEIMER: Objection.

12 You can answer.

13 A. I did not include everything I looked
14 at. I included those that were critical in
15 forming my opinion.

16 Q. Okay. So when you use the phrase in
17 your report "considered or relied upon," is the
18 definition that you just gave how we should
19 understand that phrase, that they were critical in
20 your opinion?

21 MR. OPPENHEIMER: Objection
22 to form.

23 You can answer.

24 A. Yes.

25 Q. All right. Let's turn to the beginning

1 of Exhibit 1.

2 A. Excuse me. I'd like to clarify.

3 Q. Sure.

4 A. So the documents that were critical are
5 listed. Some documents are listed simply to
6 illustrate principles and to provide a source for
7 anyone who would like a source to illustrate
8 general acceptance of a point or -- or whatever.

9 So the documents that are critical are
10 included and there are some other documents as
11 well.

12 Q. Okay. Thanks for that clarification.

13 I was also interested to know, are there
14 materials that you looked at and perhaps thought
15 that they were not essential to your report that
16 are not footnoted here?

17 MR. OPPENHEIMER: Objection
18 to form.

19 You can answer.

20 Q. Let me try this.

21 You may have at documents that helped
22 you in some way to understand some of the things
23 you discussed, but if they weren't critical, you
24 didn't necessarily list them all.

25 Is that fair?

1 A. That's --

2 MR. OPPENHEIMER: Objection.

3 You can answer.

4 A. Correct.

5 Q. All right. So from time to time we may
6 discuss parts of your report and I may ask you
7 what's the source for this or were there any other
8 documents you looked at? And at that point, that
9 would be a good time where we could discuss those
10 if you -- if you remember them. Okay?

11 A. Sure.

12 Q. Okay. So I'd like to ask you about
13 the -- the two questions that you were asked to
14 consider and answer in your report. And if -- if
15 it helps you to look at page 3, that describes
16 your expert assignment and opinions, feel free to
17 do that.

18 What were the two questions that you
19 were asked to consider in answering your initial
20 expert report?

21 A. "Question 1: From an economic
22 perspective, does the digital asset XRP function
23 as a 'currency'?"

24 "Question 2: Does Ripple's On-Demand
25 Liquidity product present an economically sound

1 option for making cross-border and cross-currency
2 payments? Why or why not?"

3 Q. Do you have any understanding that you
4 can share with us about why these questions might
5 be relevant to the outcome of this case?

6 MR. OPPENHEIMER: Objection
7 to form; calls for legal conclusions
8 and potentially conversations with
9 counsel.

10 I instruct you not to discuss
11 the substance of any communications with
12 counsel. Beyond that, you can answer if
13 you have an understanding.

14 A. It's a legal matter and counsel's been
15 very circumspect with that. So my understanding
16 is limited and incomplete.

17 Q. So without revealing any conversations
18 you had with counsel, are you really unable to
19 explain how you think your opinion might or might
20 not be useful to the -- to the court in deciding
21 this case?

22 MR. OPPENHEIMER: Objection
23 to form. Argumentative and calls for
24 speculation.

25 You can answer if you -- if you

1 know.

2 A. The case -- I know that the case
3 involves me -- the -- trying to define the nature
4 of XRP and so I was asked questions relative to
5 that definition, that -- that characterization.

6 Q. As you sit here today, and without
7 revealing anything specifically that counsel might
8 have told you, do you believe that the court is
9 required to decide whether XRP, in fact, functions
10 as a security in order to decide this case?

11 MR. OPPENHEIMER: Objection
12 to form; calls for a legal
13 conclusion.

14 You can answer.

15 A. I don't have a belief one way or the
16 other.

17 Q. Okay. As you sit here today and without
18 revealing anything that you've heard directly from
19 counsel, do you believe the court is required to
20 decide whether ODL, Ripple's On-Demand Liquidity
21 product, was an economically sound option for
22 cross-border currency payments?

23 MR. OPPENHEIMER: Objection
24 to form.

25 A. It's a legal matter. I don't have an

1 opinion one way or the other.

2 Q. Okay. Do you have any understanding as
3 to why you were a logical person to offer opinion
4 evidence on the two questions that you've -- that
5 you've just described?

6 MR. OPPENHEIMER: Objection
7 to form.

8 A. Excuse me for a moment.

9 I understand it, but it was attorney
10 privileged communication.

11 Q. Okay. We'll see if we can answer this
12 question without revealing attorney work product.

13 Do you believe you were retained in this
14 matter because of your prior experience with
15 currencies and foreign currency exchange?

16 MR. OPPENHEIMER: Objection
17 to form.

18 You should not reveal any
19 substance of privileged communication
20 that you had with counsel in answering
21 this question. If you have a
22 nonprivileged basis, you can give it,
23 though I -- I stand by the form objection
24 there as well. You can answer.

25 BY MR. MOYE:

1 Q. You can answer yes or no if that's --
2 that's a good way to limit your answer.

3 A. I -- I -- my belief is based on attorney
4 privileged information.

5 Q. Okay. Maybe we can answer this
6 question.

7 Do you believe you were retained as an
8 expert in this case to offer opinions because of
9 some extensive background that you had in
10 cryptocurrencies generally?

11 MR. OPPENHEIMER: Objection
12 to form.

13 Same general instruction.

14 A. My understanding of the reason why I --
15 my services were solicited is based on attorney
16 privileged information.

17 Q. Okay. Let's answer this: Are you aware
18 of other academics that have published research on
19 cryptocurrencies?

20 A. They exist.

21 Q. Do you know whether any other academics
22 have considered and published research or opinions
23 about whether cryptocurrencies should be
24 considered currency or money?

25 A. I am aware that that exists.

1 Q. Okay. Have you ever read any of those
2 articles -- have you ever read any academic
3 articles or publications on discussing whether
4 certain cryptocurrencies should be considered
5 money or currency?

6 A. I have not.

7 Q. And did you consider, in preparing
8 either your initial or rebuttal report, about
9 whether it might be helpful to you to read such
10 publications?

11 MR. OPPENHEIMER: Objection
12 to form.

13 You can answer.

14 A. As an expert in macro academics and
15 monetary economics and currency trading and
16 someone who has taught central banking, I had more
17 than sufficient knowledge, in my view, to arrive
18 at my own opinion, which is what counsel
19 requested.

20 Q. Prior to --

21 MR. OPPENHEIMER: Move to --
22 move to strike the reference to what
23 counsel requested there. Go ahead.

24 Q. Prior to beginning -- prior to your
25 retention in this case and prior to beginning work

1 in this case, did you have opinions about whether
2 cryptocurrencies should be considered currency or
3 money for some or for all purpose?

4 A. I have --

5 MR. OPPENHEIMER: Objection
6 to form.

7 You can answer.

8 A. No.

9 Q. Okay.

10 MR. MOYE: Why don't we take
11 a short break.

12 MS. JONES: Sure.

13 MR. MOYE: Ten minutes or
14 less.

15 MR. OPPENHEIMER: Okay.

16 THE VIDEOGRAPHER: Going off
17 the record at 10:06.

18 (Whereupon, a recess is taken.)

19 THE VIDEOGRAPHER: Okay.

20 Back on the record at 10:21.

21 BY MR. MOYE:

22 Q. Professor Osler, we've been talking for
23 some time using the term "cryptocurrency." But I
24 realized I neglected to ask you what your working
25 definition or understanding of a cryptocurrency

1 is. So let me ask you that now so we can make
2 sure that we're on the same page.

3 Can you tell us what your basic
4 understanding of a cryptocurrency is?

5 MR. OPPENHEIMER: Objection
6 to form.

7 A. It's complicated, so I need -- you know,
8 I was not asked to opine on that and I have never
9 formulated a -- a formal definition in my head.

10 Q. Okay. So without any sort of
11 prejudice -- I'm not going to say "gotcha" --
12 you've done some prior work on that working paper
13 involving cryptocurrencies.

14 A. Uh-huh.

15 Q. What's sort of your general
16 understanding of what people mean when they use
17 the term "cryptocurrency" even if you're not being
18 precise?

19 MR. OPPENHEIMER: Objection
20 to form.

21 You can answer.

22 A. Generally, cryptocurrencies are -- I can
23 give you some properties of them. They're traded
24 on a -- a distributed ledger that is avail -- you
25 know, out in cyberspace, so it does not have a

1 sort of earth-bound location.

2 They have no future cash flows, which is
3 something that I highlight in my paper on the
4 subject.

5 Q. What do you mean --

6 A. Those are two properties that come to
7 mind.

8 Q. Okay. What do you mean when you say
9 "they have no future cash flows"?

10 A. There is no interest paid generally.
11 These days we're moving into new spaces, but
12 there's no interest. There's no dividends.
13 That's the sense of cash flows that I mean
14 specifically.

15 Q. Okay. Do you have an understanding,
16 general or specific, about the term "digital
17 asset"?

18 MR. OPPENHEIMER: Objection
19 to form.

20 A. I have not thought about precisely what
21 a digital asset is.

22 Q. Okay. Do you have an understanding
23 about the nature or definition of a convertible
24 cryptocurrency?

25 MR. OPPENHEIMER: Objection;

1 form.

2 A. No.

3 Q. Okay. I know your report discusses
4 features or attributes of currency, but I wasn't
5 sure if there was an actual definition in your
6 report of what you mean when you use the term
7 "currency."

8 Can you explain in layman's terms, if
9 possible, what you mean when you use the term
10 "currency" in your report?

11 MR. OPPENHEIMER: Objection.

12 You can answer.

13 A. You're correct that I do not provide a
14 definition. I was asked whether -- Question 1
15 asks whether XRP functions as -- has the functions
16 of a currency. And I highlight that it has the
17 functions and the attributes normally frequently
18 associated with a currency.

19 Q. But you do use the term "currency," in
20 quotes, right at the top of page 3. So I was
21 curious as to what your definition, either
22 specific or general, was of a currency.

23 MR. OPPENHEIMER: Objection

24 to form.

25 Q. Can you answer?

1 A. My opinion does not include a definition
2 of a currency. And I address the functions of a
3 currency. I do not provide a definition.

4 Q. But you -- you have an understanding of
5 what a currency is.

6 Could you share that with us, please?

7 MR. OPPENHEIMER: Objection.

8 You can answer.

9 A. It's a very complicated matter. There's
10 mountains of research of the exact nature of money
11 and currency, and so my understanding is very rich
12 and complex and any quick summary would not do it
13 justice.

14 Q. So did you mean to leave currency as an
15 undefined term in Question 1 of your expert
16 report?

17 MR. OPPENHEIMER: Objection.

18 You can answer.

19 A. I was asked whether -- my report
20 addresses the question that was posed to me, which
21 is whether XRP functions as -- has the functions
22 of a currency. So I addressed that question.

23 Q. What did Ripple mean or the -- the
24 lawyers who asked you this question as best you
25 can tell us? What did -- what did counsel mean

1 when they asked you to -- whether Ripple functions
2 as a currency? What are we to understand from
3 your use of that word in your opinion?

4 MR. OPPENHEIMER: Objection.

5 I instruct you not to disclose
6 the substance of communication with
7 counsel. To the extent you understand
8 and have an answer to that question
9 without revealing privileged
10 communications, you can give it.

11 A. So my understanding of the functions of
12 a currency as characterized in the academic
13 literature, as specified in the question here, the
14 literature has -- the literature has a rich
15 discussion of these functions, not always labeled
16 as such, but these functions, what it does. And
17 so I drew on the consensus or the -- my
18 understanding of the consensus of the academic
19 literature on the functions.

20 Q. Were you asked whether Ripple met
21 the legal -- sorry.

22 Were you asked whether XRP met the legal
23 definition of a currency?

24 MR. OPPENHEIMER: Objection.

25 A. I -- that would be attorney privileged

1 information.

2 Q. Well, I don't believe you hired him as
3 your counsel, right? So we're talking about work
4 product. I understand the general sense that you
5 don't feel like it's appropriate to answer that.

6 But I'm asking you, did you think you
7 needed to opine on whether XRP functioned in a way
8 that met a specific legal definition of the term
9 "currency"?

10 MR. OPPENHEIMER: Objection
11 to form. Hang on a second.

12 If you have an answer to that
13 question that does not require you to
14 draw on privileged communications with
15 counsel, you can give it. If your answer
16 would disclose the substance of attorney
17 work product conveyed to you in
18 communications with counsel, you should
19 not respond.

20 A. I cannot answer that question.

21 Q. Okay. I understand what you just said.
22 I want to just clarify for the record.

23 So you're telling -- your -- your
24 testimony is that you cannot explain what you were
25 trying to -- what definition of currency you were

1 working with without revealing your conversations
2 with counsel. Is that fair?

3 MR. OPPENHEIMER: Objection
4 to form; mischaracterizes testimony.

5 You can answer.

6 A. That would -- that's inaccurate and it
7 misrepresents my testimony so far. What I have
8 said is that I looked at the functions of a
9 currency. I have not said that I looked at
10 definitions of a currency.

11 Q. Okay. All I'm trying to establish is
12 whether you can explain what definition of
13 currency you are working with for purposes of this
14 expert report.

15 Can you do that?

16 MR. OPPENHEIMER: Objection;
17 asked and answered.

18 You can answer again.

19 A. I have clarified that I worked with the
20 functions of a currency.

21 Q. Would it be fair to say that for
22 purposes of your report, currency is undefined
23 except as you explain its functions?

24 MR. OPPENHEIMER: Objection.

25 You can answer.

1 A. It would -- the report lists the
2 functions and attributes. The functions that
3 are -- and attributes that are -- the functions
4 that are a consensus within overall academics
5 associated with currencies and the attributes that
6 are considered helpful in currency.

7 Q. Okay. Are you saying that for this
8 purpose, currency can be defined by its function?
9 Is that fair?

10 MR. OPPENHEIMER: Objection.

11 You can answer.

12 A. No.

13 Q. Okay. I'm ready to move on, but I just
14 want to give you the chance to -- to tell us, if
15 you can, what definition of currency you were
16 trying to evaluate XRP against when you began this
17 work.

18 MR. OPPENHEIMER: Objection;

19 asked and answered.

20 You can answer again.

21 A. I was looking at the consensus on the
22 functions of a currency as specified and I also
23 looked at helpful attributes of currencies.

24 Q. All right. Let's look at Exhibit 1,
25 page 4.

1 A. Okay. Page 4?

2 Q. Yes, page 4.

3 A. There's no Exhibit.

4 Q. Exhibit 1, page --

5 A. Oh, Exhibit 1, page 4.

6 Q. Yeah, Exhibit 1, page 4. I'm sorry.

7 So I'm looking at your report, Section

8 III.

9 Can you read the -- the heading for

10 Section III out loud?

11 A. "Opinion on Question 1: XRP has the
12 functions and attributes commonly assigned to
13 currencies by experts."

14 Q. Okay. Which experts were you referring
15 to in the following section, Section III?

16 A. I was referring to the consensus among
17 academics with no specific reference to
18 individuals.

19 Q. Okay. Are there any individuals that
20 you think are representative of the consensus
21 among academics?

22 MR. OPPENHEIMER: Objection.

23 A. I couldn't specify one.

24 Q. Okay. So it's -- with the exception of
25 the individuals that are cited in the footnotes,

1 there aren't any other experts that you're
2 prepared to say fit into the category of the
3 heading. Is that okay?

4 MR. OPPENHEIMER: Objection

5 to --

6 Q. Is that correct?

7 MR. OPPENHEIMER: Objection

8 to form.

9 Q. Let me take that back. Let me ask you a
10 different question.

11 Do you believe that the individuals that
12 are cited in the footnotes of Section III qualify
13 in some degree or another as experts and that they
14 fit this consensus group you're describing?

15 MR. OPPENHEIMER: Objection

16 to form.

17 A. I think that question has got a lot
18 going on in there and it would be important to
19 break it down.

20 Q. Okay. Do you know any other expert that
21 has -- that uses the same definition, whether
22 functional or otherwise, for currency as you do?

23 MR. OPPENHEIMER: Objection

24 to form.

25 You can answer.

1 A. My answer is the synthesis of what's in
2 the academic literature as I have read it over
3 many years and in many contexts. And I did not
4 rescan those documents to identify which academic
5 exactly -- whether any specific academic exactly
6 fits what I have listed here.

7 Q. Okay. Second sentence of Section III,
8 paragraph 8, you say "It is commonly assumed that
9 all currencies are state-sponsored," and then your
10 sentence goes on.

11 Do you see that?

12 A. Yes.

13 Q. Who are you referring to when you say
14 "it is commonly assumed"?

15 A. Historical discourse.

16 Q. Okay. Are you referring to experts or
17 lay people?

18 MR. OPPENHEIMER: Objection.

19 You can answer.

20 A. Lay people primarily. Yeah.

21 Q. And then you go on to say "state
22 sponsorship is neither necessary nor sufficient
23 for legitimate currencies."

24 Do you see that?

25 A. I do.

1 Q. Okay. What is your source for your
2 assertion that state sponsorship is not --
3 "neither necessary nor sufficient for legitimate
4 currencies"?

5 A. I list quite a few sources in the notes
6 to that paragraph. Kusimba in 2017, an
7 anthropologist of high standing, highlights an
8 extensive anthropological literature that
9 discusses money that existed before states spons
10 -- states even existed, for example.

11 So there are other citations there.

12 Q. Is Kusimba an economist?

13 A. No. Kusimba is an expert in money, in
14 anthropology.

15 Q. Okay. Are the experts that you refer to
16 as having the attributes commonly assigned to
17 money, are they economists or are they
18 anthropologists?

19 MR. OPPENHEIMER: Objection
20 to form.

21 A. The experts I have in mind are -- come
22 from both areas.

23 Q. Do the experts you refer to include
24 government officials?

25 MR. OPPENHEIMER: Objection.

1 You can answer if you know.

2 A. Some of them might be.

3 Q. Okay.

4 A. Yeah, absolutely.

5 Q. In paragraph 2, which is the first
6 Kusimba reference in your -- Footnote 2, sorry --

7 A. Uh-huh.

8 Q. -- which is the first Kusimba reference
9 in your report, what type of publication is The
10 Conversation?

11 A. The Conversation is a synthesis of
12 academic work for what I call the educated
13 layperson.

14 Q. Okay. Is it an academic -- is it a
15 peer-reviewed academic publication?

16 A. It is not a peer-reviewed academic
17 publication.

18 Q. Okay.

19 A. It is a synthesis of the research in
20 peer-reviewed academic publications. That is the
21 purpose of The Conversation.

22 Q. So it's by academics. Is that fair?

23 A. It is by academics and it is generally
24 about academic research.

25 Q. Okay. Is it intended for an academic

1 audience or for a popular audience?

2 A. It's intended to bring academic insights
3 in published papers to a popular audience.

4 Q. Are you familiar with The State Theory
5 of Money?

6 A. No.

7 MR. OPPENHEIMER: Objection.

8 You can answer.

9 Q. Have you heard of George Knapp,
10 K-N-A-P-P?

11 A. Not to my recollection.

12 Q. Have you heard of Abbe, A-B-B-E, Lerner,
13 L-E-R-N-E-R?

14 A. There's a Lerner that I'm familiar with
15 and I don't recall this individ -- although I have
16 read at different points, I don't recall that
17 person's first name.

18 Q. Are you aware that certain economists
19 believe that legal tender is central to the status
20 of money?

21 MR. OPPENHEIMER: Objection

22 to form.

23 You can answer.

24 A. No.

25 Q. Have you ever read an academic article

1 about money or currency that suggested that state
2 sponsorship was an important aspect of money?

3 MR. OPPENHEIMER: Objection.

4 You can answer.

5 A. I've read so much over the years it
6 would be unable -- I'd be unable to say.

7 Q. As you sit here today, do you believe
8 there are economists that posit that state
9 sponsorship is an important aspect of money?

10 MR. OPPENHEIMER: Objection.

11 A. As I've articulated, the discussion of
12 money --

13 THE REPORTER: I'm sorry.

14 Repeat. As a?

15 A. As I have articulated, the discussion of
16 money among economists goes back centuries and
17 there are many varied opinions.

18 Q. Would some of those opinions include the
19 fact that state sponsorship is an important
20 attribute of money?

21 MR. OPPENHEIMER: Objection

22 to form.

23 A. There might be, but it -- that opinion,
24 like many others, violates the fact that money has
25 existed since well before states existed.

1 Q. Are you familiar with the spontaneous or
2 emergent theory of money?

3 MR. OPPENHEIMER: Objection
4 to form.

5 A. I couldn't put that name on it, but I
6 believe I'm familiar with that theory.

7 Q. Okay. Are you familiar -- familiar with
8 that concept by the name of societary theory of
9 money?

10 MR. OPPENHEIMER: Objection
11 to form.

12 A. The particular name? No. But I
13 under -- I believe I understand the concept.

14 Q. Okay. According to the spontaneous or
15 emergent theory of money, however you understand
16 it, do you believe that the universal acceptance
17 as a medium of exchange is the most important
18 criteria for money?

19 MR. OPPENHEIMER: Objection
20 to form.

21 You can answer.

22 A. Universal acceptance has never been
23 achieved by money anywhere at any time.

24 Q. Are you familiar with an economist named
25 Carl Menger, M-E-N-G-E-R?

1 A. The name has crossed my path, yes.

2 Q. Have you ever read anything by Carl
3 Menger as far as you know?

4 A. Probably.

5 Q. Okay. Are you familiar with an
6 economist named Friedrich, F-R-I-E-D-R-I-C-H,
7 Hayek, H-A-Y-E-K?

8 A. Yes.

9 Q. Do you believe either of these two
10 individuals have championed or promoted the
11 spontaneous or emergent theory of money?

12 MR. OPPENHEIMER: Objection
13 to form.

14 A. I couldn't say.

15 Q. Okay. Would you agree with me that
16 among economists in particular, there are a
17 variety of views about what makes an asset money
18 and whether an asset functions well as money?

19 MR. OPPENHEIMER: Objection.

20 A. As I had said, the subject is quite rich
21 and the debate/discussion has been going on for
22 centuries now. So within anybody of econ -- of
23 academics, there will be debates.

24 Q. Okay. Do you think in these debates,
25 there's a divergence of views about the attributes

1 of money or whether state sponsorship should be
2 considered as an attribute of money?

3 MR. OPPENHEIMER: Objection.

4 You can answer.

5 A. As I have said, my job was to convey the
6 broad understanding or the consensus understanding
7 of the field and I believe I have conveyed the
8 broader consensus understanding among academics,
9 including experts with knowledge that is not
10 widely shared among economists on the history of
11 money.

12 Q. So when you say "state sponsorship is
13 neither necessary nor sufficient for legitimate
14 currencies," are you saying -- are you describing
15 a consensus rather than a view universally held by
16 economists?

17 MR. OPPENHEIMER: Objection

18 to form.

19 A. I'm describing a consensus.

20 Q. Do you mean to suggest that there are no
21 economists that believe that state sponsorship is
22 an important aspect of money?

23 MR. OPPENHEIMER: Objection

24 to form.

25 A. Your question mistakenly conflates

1 consensus with unanimity. So the answer is no.

2 Q. Okay.

3 A. Oh, wait a minute. No or yes depending
4 on the phrasing. Please re -- restate it.

5 Q. Why -- why don't we rephrase to make
6 sure we understand each other.

7 When you say -- when you try to
8 represent -- when you represent the consensus that
9 state sponsorship is not necessary for something
10 to be considered money, do you mean to suggest to
11 the court or a reader of your report that there is
12 no legitimate economist that believes that state
13 sponsorship is an important aspect of money?

14 MR. OPPENHEIMER: Objection
15 to form.

16 A. No, I do not.

17 Q. Okay. Did you consider discussing any
18 divergence or nonstandard views about what are the
19 attributes of money?

20 MR. OPPENHEIMER: Objection
21 to form.

22 Q. We know what you put in your report. So
23 I'm -- I'm asking did you consider putting in your
24 report that there are other views about what makes
25 money or what makes money good?

1 MR. OPPENHEIMER: Objection.

2 A. Because my job as an expert is to
3 highlight areas of common understanding, not to
4 delve into arcane details of disagreements among
5 this or that group, small, I did not -- I
6 considered it not my job to delve into the arcane
7 details of economic debate.

8 Q. Okay. Would it be fair to say, then,
9 that as you sit here today, you cannot offer an
10 opinion about whether XRP would be considered a
11 currency under this state theory of money?

12 MR. OPPENHEIMER: Objection
13 to form.

14 A. Please restate the question.

15 Q. Yeah.
16 You don't know whether XRP would be
17 considered money or a currency by those who hold
18 to a state theory of money, do you?

19 MR. OPPENHEIMER: Objection
20 to form.

21 A. I did not represent an opinion on that
22 matter because I was not delving into arcane
23 debates.

24 Q. I understand that. Thank you for
25 clarifying. But my question was a little

1 different.

2 I'm asking if you know whether XRP would
3 be considered a currency under the state theory of
4 money.

5 THE REPORTER: I can't hear
6 you.

7 Q. Would it be considered a currency under
8 the state theory of money?

9 MR. OPPENHEIMER: Objection
10 to form; asked and answered.

11 A. I did not offer an opinion on that.

12 Q. I understand you did not offer an
13 opinion. I'm just trying to clarify whether you
14 have an opinion on that. Do you know what the
15 state theory of money is and do you know whether
16 XRP fits it?

17 MR. OPPENHEIMER: Objection
18 to form.

19 A. I did not offer an opinion on it.

20 Q. Okay. Sounds like you can't go any
21 further in answering my question, is that right?

22 MR. OPPENHEIMER: Objection
23 to form; mischaracterizes.

24 A. That absolutely mischaracterizes what I
25 communicated. I communicated that I did not offer

1 an opinion.

2 Q. Well, as you sit here today, does XRP
3 function as a currency under the state theory of
4 money?

5 MR. OPPENHEIMER: Objection
6 to form.

7 A. Because I did not offer an opinion, I
8 have not thought deeply about it and I could not
9 give an opinion.

10 Q. Fair enough.
11 Is XRP accepted as fiat money in any
12 country in the world?

13 MR. OPPENHEIMER: Objection
14 to form.

15 Q. Let me -- let me rephrase.
16 Do you know whether XRP is accepted as
17 fiat or legal tender money in any country in the
18 world?

19 MR. OPPENHEIMER: Objection
20 to form.

21 A. I believe -- I -- I couldn't say for
22 sure.

23 Q. I understand that caveat. That's
24 important.

25 Do you think it might be and you're not

1 sure or do you think it is not, but you're not
2 sure about that?

3 MR. OPPENHEIMER: Objection
4 to form.

5 A. I just really couldn't say.

6 Q. Not one way or the other?

7 A. Not one way or the other.

8 Q. So would it surprise you if it is
9 somewhere?

10 A. That -- so my question is not -- my --
11 excuse me for a moment while I try to frame my
12 answer.

13 This is a legal matter and it's beyond
14 what I was asked to opine on and I have not
15 thought about it deeply.

16 Q. Fair enough.

17 I'd like to ask you about paragraph 11
18 of your report. If it would help you, feel free
19 to take a moment to review it now.

20 (Pause)

21 A. I've read it.

22 Q. Okay. And I need to apologize and make
23 a clarification. I've been using the term "money"
24 and "currency" interchangeably. I notice that in
25 Footnote 1, you say you do that in your report as

1 well.

2 Are you okay with if I use money and
3 currency interchangeably in this deposition?

4 MR. OPPENHEIMER: Objection
5 to form.

6 You can answer.

7 A. Right. There's an important caveat that
8 I'm sure you're aware of, as I am, that in certain
9 contexts of macroeconomics, there's an important
10 distinction and I teach that to my students
11 regularly. But I find that colloquially, they are
12 used interchangeably, and so I have done that in
13 my report as well.

14 Q. Okay. So if it's important to make that
15 distinction in either clarifying my questions or
16 clarifying your answer --

17 THE REPORTER: Repeat.

18 Q. If it's important to make that
19 distinction between currency and money in
20 clarifying my questions or in explaining your
21 answer, please do that.

22 A. Uh-huh.

23 Q. But if it's okay if we proceed using
24 money and currency interchangeably as they're
25 commonly used, that's how I will refer to it.

1 Is that okay?

2 A. That is --

3 MR. OPPENHEIMER: Objection.

4 A. -- okay.

5 Q. All right. So referring to paragraph 11
6 of your report --

7 A. Uh-huh.

8 Q. -- and specifically to the idea that
9 money is a medium of exchange, do you agree with
10 me that a general acceptance of money is required
11 in order to serve as a medium of exchange?

12 MR. OPPENHEIMER: Objection
13 to form.

14 A. That would have to be unpacked and dealt
15 with very carefully.

16 Q. So is that, no, you disagree with that
17 as -- as I'm using it because you need additional
18 clarification or you mostly agree, but there are
19 exceptions?

20 MR. OPPENHEIMER: Objection
21 to form.

22 A. So my objection to the phrasing you used
23 has to do with "generally accepted," which is
24 undefined.

25 Q. All right. You talk about medium of

1 exchange leading to an efficient exchange of goods
2 and services, is that correct?

3 A. I also talk about medium of exchange in
4 my report in terms of exchanging among currencies.

5 Q. Okay. Can you help us understand what
6 you mean when you say "medium of exchange"? Does
7 it not imply that in order for money or currency
8 to be exchanged between different participants in
9 economy, that people have to accept it for
10 transactions in order for money to function?

11 MR. OPPENHEIMER: Objection
12 to form.

13 A. As I describe in my report, money gets
14 you from one item to another without the double
15 coincidence it warrants.

16 So, for example, if someone has Japanese
17 yen and someone else has Philippine pesos, the
18 person with yen does not have to find someone --
19 the person trying to sell yen does not have to
20 find someone who wants to buy Philippine -- to
21 sell Philippine pesos. You get it. Transact.

22 Someone with -- someone trying to sell
23 yen and buy pesos does not need to find someone
24 right away who wants to sell pesos.

25 Instead, they will go -- they will

1 exchange the yen for the medium of exchange, which
2 on ODL is XRP, and the XRP they then exchange for
3 the pesos. So the XRP on the ODL platform serves
4 as a medium of exchange between the yen and the
5 Philippine peso.

6 Q. So positing hypothetically a situation
7 in which one person has yen and one person has
8 pesos, but there is no bridge currency or asset
9 like XRP, does yen function as a medium of
10 exchange?

11 MR. OPPENHEIMER: Objection

12 to form.

13 You can answer if you
14 understand.

15 A. I'm -- I -- could you restate that?
16 My -- my answer had nothing to do with whether the
17 yen is a medium of exchange or not. So I'm not
18 quite sure what -- whether your question was
19 correctly phrased.

20 Q. Well, I was asking you a hypothetical.
21 So it may not have been correctly phrased, but
22 what I was trying to get at is whether in an
23 economy where some people have yen and some people
24 have pesos, about whether they're -- whether there
25 can be a medium of exchange if the people with the

1 yen don't accept pesos and the people with pesos
2 don't accept yen?

3 MR. OPPENHEIMER: Objection
4 to form.

5 A. I think I am still not finding a way to
6 make sense of your question.

7 Q. All right. Let's talk about money in
8 general.

9 How many people in an economy have to
10 accept a currency before it's really a currency?
11 How many people have to accept an asset before it
12 can be considered a currency?

13 MR. OPPENHEIMER: Objection
14 to form.

15 A. So this is an interesting question. The
16 threshold is extremely low and -- but it has not
17 formally been the subject of research. I know
18 that the threshold is extremely low because
19 economists worldwide like to cite a paper by
20 Radford about how cigarettes served as money in
21 World War -- in a prisoner of war camp in World
22 War II. So the prisoner of war camp would have
23 been relatively quite small, one presumes, and yet
24 economists, in fact, assign this often to their
25 students and it gets cited commonly. It's almost

1 universally known and it's, in fact, all over,
2 sort of, the media as a widely accepted
3 illustration of a money.

4 So we have a threshold of the number of
5 POWs accepting cigarettes as money in a POW camp
6 in World War II. That's considered money by
7 fairly -- you know, I can't say universally, but
8 certainly by the vast majority of economists.

9 Q. And you're familiar with that paper by
10 Radford because you cited it in your report,
11 correct?

12 A. I have read it.

13 Q. Okay. So how many POWs accepted
14 cigarettes as currency? Was it hundreds?

15 A. I do not remember whether the number was
16 in there and exactly what the number -- roughly
17 what the number would have been.

18 Q. Could it have been dozens?

19 MR. OPPENHEIMER: Objection
20 to form.

21 A. You know, I do not recall the specifics
22 of the size of the POW camp from the article, so I
23 really would be unable to be specific.

24 Q. Well, for purposes of this hypothetical,
25 assume that in this POW camp in southeast Asia,

1 there were thousands of American POWs, okay?

2 A. Uh-huh.

3 Q. And that many of them, many hundreds of
4 them, received cigarettes in their Red Cross
5 packages and so they were available to either
6 smoke or trade.

7 So my question is, based on your
8 understanding of how an asset can be used as a
9 currency, how many people among thousands would
10 need to accept cigarettes as currency in order for
11 cigarettes to be considered money?

12 MR. OPPENHEIMER: Objection
13 to the form.

14 A. As I have answered, there is no specific
15 threshold in the academic literature. An implied
16 threshold from the very, very wide acceptance of
17 this paper is that it would be the number of POWs
18 that were accepting cigarettes as currency.

19 Q. So are you saying you don't know whether
20 it was a relatively small number or relatively
21 large number of people that accepted cigarettes as
22 currency?

23 MR. OPPENHEIMER: Objection
24 to form.

25 A. "Relatively small" and "relatively

1 large" are not defined in this context. My
2 understanding of the magnitude of POW camps would
3 be that it was less than a million and possibly
4 far less.

5 THE REPORTER: Less than a
6 million?

7 THE WITNESS: And possibly
8 far less.

9 Q. I'm sorry. Are you suggesting that it
10 could be 900,000 POWs accepting cigarettes as
11 currency?

12 MR. OPPENHEIMER: Objection
13 to form.

14 A. It is possible that it was.

15 Q. You don't know one way or the other, is
16 that fair?

17 MR. OPPENHEIMER: Objection.

18 A. I have been clear that I could not
19 specify.

20 Q. Okay. For purpose of my -- for purpose
21 of my hypothetical, I'm going to ask you to assume
22 that only a small number of prisoners, a dozen or
23 less, were willing to facilitate transfers of
24 goods by accepting cigarettes in trade as
25 currency.

1 If the number's really small, is it
2 still fair to consider an asset a currency?

3 MR. OPPENHEIMER: Objection
4 to form.

5 A. I have -- "really small," there is no
6 definition here.

7 Q. Right. That's why I suggested it's less
8 than a dozen.

9 A. In terms of less than a dozen, as I
10 said, there is no threshold --

11 Q. Okay.

12 A. -- in the literature.

13 Q. All right.

14 A. There's an implied threshold of the size
15 of a POW camp in Germany in World War II.

16 Q. All right. In terms of the trade
17 between pesos and yen -- I guess that's not in
18 paragraph 11, but in the one you mentioned before.

19 If someone is going to help someone with
20 yen to get pesos and someone with pesos to get yen
21 and they're going to use something like ODL as a
22 bridge asset, would you say ODL's a currency if --
23 if just one person is willing to accept ODL in
24 payment for another currency?

25 MR. OPPENHEIMER: Objection

1 to form.

2 A. That -- that -- that's just -- I don't
3 know how to put this. That's very speculative and
4 I have not spent time considering that question.

5 Q. I need to clarify something. I said ODL
6 when I should have said XRP. So let me give you
7 another version of that question.

8 A. Okay.

9 Q. If only one or two people in an economy
10 accept XRP in exchange for other goods or
11 services, are you still comfortable calling XRP a
12 currency?

13 MR. OPPENHEIMER: Objection

14 to form.

15 You can answer.

16 A. My -- my opinion does not delve into
17 that question and so I do not have a formal
18 response for it.

19 Q. Okay. I understand you don't have a
20 formal response and we can move on if -- if you
21 cannot give me anything more. But I believe you
22 said you don't believe that an asset like XRP has
23 to be accepted by everyone. I believe you've also
24 said you don't think an asset even has to be
25 generally accepted. It just has to be accepted by

1 a subset of an economy.

2 So I'm trying to find out whether you're
3 willing to put a lower limit on the number of
4 people or participants in an economy that have to
5 accept an asset before it can be considered a
6 currency.

7 MR. OPPENHEIMER: Objection
8 to form. It mischaracterizes
9 testimony; misleading; and I think
10 ambiguous, too.

11 You can answer.

12 A. I'd like to start with the
13 mischaracterization. I said nothing about whether
14 generally accepted is or isn't anything. I said
15 it is not defined.

16 So I forget your phrasing, but it
17 attributed something to me that I did not say.
18 What I did say is that generally accepted is
19 not -- is not defined.

20 Furthermore, I have said, and I repeat,
21 and it's very important, that my job here is to
22 communicate a consensus among the academics and
23 not any -- for the court. And the academic
24 literature has not, to my knowledge, delved into
25 exactly how many people is necessary for general

1 acceptance or for something to be considered a
2 currency.

3 And what I did say is that the implied
4 number from the academic consensus is quite low by
5 population standards. And I highlighted the
6 example of the Radford piece where economists very
7 broadly consider cigarettes to have been a money
8 where the maximum number of individuals accepting
9 and receiving them would have been the number of
10 people in a German POW camp in World War II.

11 I could also cite the fact the
12 Seychelles rupee is considered a currency and
13 there are less than a million people in
14 Seychelles, that the Europe -- eastern European
15 currency unit is -- is accepted as a currency in
16 St. Lucia and nearby islands and that the grand
17 total of people living in those islands is less
18 than a million.

19 So the -- the economists' consensus is a
20 number that is below a million and possibly well
21 below a million because it's the number of people
22 in those German POW camp. And that's as much as I
23 can say.

24 Q. Thank you for that clarification.

25 In describing the academic or

1 economists' consensus, is it fair to say that
2 general acceptance would be an important attribute
3 of money?

4 MR. OPPENHEIMER: Objection

5 to form.

6 A. Again, general acceptance is not
7 defined.

8 Q. Whether or not it's defined, is that
9 something that's used in the literature? Is that
10 something that academics talk about when
11 discussing whether something is money?

12 MR. OPPENHEIMER: Objection

13 to form.

14 A. It comes up. It comes up. The Federal
15 Reserve of St. Louis lists it as a helpful
16 attribute.

17 But, to be -- to be -- to be very clear,
18 acceptability, the nature of it is ill-defined and
19 the minimum threshold for acceptability is -- is a
20 number well below a million as we see in -- in the
21 generally accepted currencies according to
22 economists.

23 Q. Are you saying that -- scratch that.
24 Let's -- let's move on to a different topic.
25 Let's talk about store of value.

1 I'd like to refer to you paragraph 12 on
2 page 5 of your report.

3 THE WITNESS: Actually, I'd
4 like to take a quick break.

5 MR. OPPENHEIMER: Is this a
6 good time?

7 MR. MOYE: Fine with me.

8 THE VIDEOGRAPHER: Okay.
9 Going off the record, 11:08.

10 (Whereupon, a recess is taken.)

11 THE VIDEOGRAPHER: Okay.
12 We're back on the record at 11:19.

13 BY MR. MOYE:

14 Q. Professor Osler, would I be correct that
15 among economists, there's a consensus that money
16 has three main attributes and that those would be
17 money as a medium of exchange, that it is a store
18 of value, and it is a unit of account?

19 MR. OPPENHEIMER: Objection
20 to form.

21 A. I would -- no. Those are the functions
22 of money. The attributes I highlight that are
23 helpful are other things.

24 Q. Okay. Thanks for that clarification.

25 Looking at the three main functions of

1 money, am I also correct that there's a hierarchy
2 among these functions of money; that some
3 functions are easier to achieve or harder to
4 achieve than others?

5 MR. OPPENHEIMER: Objection
6 to form.

7 A. Let's be careful. The functions of
8 money I highlight, there are four and -- there are
9 four, just to be clear. And is there a hierarchy
10 among them? Not that -- not that I could be aware
11 of.

12 Q. Okay. Which is the more important
13 function of money: To be a medium of exchange or
14 to be a store of value?

15 MR. OPPENHEIMER: Objection
16 to form.

17 A. There is no hierarchy that I'm aware of.

18 Q. So if something is used commonly as a
19 medium of exchange among goods and services, but
20 it doesn't hold the value very well, can it still
21 be money?

22 MR. OPPENHEIMER: Objection
23 to form.

24 A. This happens all the time.

25 Q. So is that a yes?

1 A. Yes.

2 Q. Okay. And let's assume that something
3 is used as a medium of exchange or means of
4 payment and more or less holds its value but it's
5 difficult to use as a unit of account, can it
6 still be money?

7 MR. OPPENHEIMER: Objection
8 to form.

9 A. If it's used as a medium of exchange, it
10 is effectively used as a unit of account.

11 Q. Could you elaborate on that, please?

12 A. So --

13 Q. If I'm trading cows --

14 A. So let's go back to my example of the
15 yen and Philippine pesos. So in the transaction
16 where someone is selling yen and buy -- in
17 exchange for Philippine pesos, the -- at the -- a
18 transaction that goes through a vehicle currency
19 like XRP. So the person with yen is going to buy
20 XRP. And so the price is how many XRP per yen?
21 So in that sense it's being used as a unit of
22 account. Yen are being measured in XRP.

23 Q. Thank you for using that example. I'd
24 like to suggest a different example and get your
25 feedback on it.

1 Suppose I'm trading yen for Philippine
2 pesos directly without using a bridge or
3 intermediate asset.

4 Are you suggesting that both of those
5 currencies are a unit of account for the other?

6 MR. OPPENHEIMER: Objection
7 to form.

8 A. That problem has -- that statement
9 has -- the hypothetical has premises that are
10 incorrect.

11 Q. So can you answer or not?

12 MR. OPPENHEIMER: Objection
13 to form.

14 A. Because the premises are incorrect, the
15 question is not -- there is no question.

16 Q. Okay.

17 A. It makes no sense.

18 Q. Let me try something different.

19 Would you agree that to be -- to -- to
20 function as a medium of exchange, money needs to
21 be a store of value?

22 MR. OPPENHEIMER: Objection
23 to form.

24 You can answer.

25 A. Implicit in the nature of the medium of

1 exchange is the idea that something can be a store
2 of value at least briefly.

3 Q. Okay. In order to be a unit of account,
4 isn't a wide acceptance either required or
5 implied?

6 A. No.

7 Q. Okay. In paragraph 12 on page 5 of your
8 report, when you define unit of account, which is
9 underlined, and store of value, which is also
10 underlined, what is the source or -- or citation
11 for these concepts?

12 A. This is something that economists
13 with -- Ph.D. economists learn this starting in
14 college and then in grad school. And I provided a
15 specific citation to a specific source to
16 illustrate that these things -- these concepts are
17 out there. But the source, this is -- this is
18 what we're taught basically.

19 Q. Okay. So you're describing a consensus
20 with those definitions? Those are consensus
21 definitions?

22 A. Yes, I am.

23 Q. Okay. So at the beginning of paragraph
24 12, the first sentence, you do have a -- an
25 identified source in paragraph 7, the Federal

1 Reserve Bank of St. Louis.

2 As you've written it, does the -- are
3 the definitions of unit of account and store of
4 value, are they also described by the Federal
5 Reserve of St. Louis in that same source?

6 MR. OPPENHEIMER: Objection
7 to form.

8 Q. I'm just trying to understand how you
9 arranged it here.

10 A. I arranged it as follows: I defined it
11 myself and then I found a source that lists unit
12 of account and store -- store of value.

13 Q. Okay. And what was that source?

14 A. Let's see. I found the Federal -- the
15 Federal Reserve Bank of St. Louis, Functions of
16 Money, and the Mankiw was also used to illustrate
17 sources that cite these functions.

18 Q. Okay. So talking -- right now my
19 questions are going to be about the Federal
20 Reserve of St. Louis and not about the Mankiw.

21 But Mankiw is spelled M-A-N-K-I-W, is
22 that right?

23 A. That's correct.

24 Q. So is this -- is the -- is the source
25 you cited in Footnote 7, the Federal Reserve Bank

1 of St. Louis, is that a written publication?

2 A. Please define "written publication."

3 Q. Yeah. Is it a paper or is it a podcast?

4 MR. OPPENHEIMER: Objection.

5 You can answer.

6 A. It's a podcast that I remember had a
7 written -- the text was written.

8 Q. So like a transcript?

9 A. A transcript.

10 Q. Okay. So that cite is both a podcast
11 that you can listen to and it's a transcript,
12 right?

13 A. Yes.

14 Q. Okay. Who's the speaker on that
15 podcast?

16 A. That's a great question. I don't know.

17 Q. Do you know whether this is an economist
18 or whether it's a PR person?

19 MR. OPPENHEIMER: Objection.

20 Q. And those are not the only
21 possibilities, of course. I'm trying to find out
22 who is the source of this podcast and transcript.

23 A. The source would be Federal Reserve Bank
24 of St. Louis economists. Whoever spoke it is
25 another matter.

1 Q. Okay.

2 A. It would be like whoever reads a book on
3 Kindle.

4 Q. All right. So you think -- it's your
5 understanding that whoever is describing the
6 matters in the podcast is an economist or is
7 speaking for the economists at the Federal Reserve
8 Bank of St. Louis? Is that fair?

9 MR. OPPENHEIMER: Objection.

10 You can answer.

11 A. As a Federal Reserve Bank of -- Federal
12 Reserve Bank of St. Louis publication, it will
13 have been endorsed by economists at the Federal
14 Reserve Bank of St. Louis.

15 Q. So presumably vetted by those in charge.
16 Is that fair?

17 MR. OPPENHEIMER: Objection.

18 A. I have assumed as much.

19 Q. Okay. But with regard to the podcast
20 itself, is this a podcast intended for academics
21 or do you think it might be a podcast intended for
22 high school or secondary aged students?

23 MR. OPPENHEIMER: Objection

24 to form.

25 You can answer.

1 A. I intentionally chose some of my
2 citations so that they would be accessible to
3 people who were not economists. And this one is
4 intended for -- I believe it was high school
5 students, and so it would have been accessible.

6 Q. So the widest possible acceptance. Fair
7 enough?

8 MR. OPPENHEIMER: Objection.
9 You can answer.

10 A. No. It was intended for U.S. high
11 school students.

12 Q. Okay. You could have cited something
13 else, correct? An academic paper or some of your
14 own work, perhaps?

15 A. I could certainly have cited something
16 else. Absolutely.

17 Q. Okay.

18 A. As a member of the Federal Reserve
19 system whose function is to manage the monetary
20 policy of the United States, which includes money
21 as -- absolutely at the core of it, the Federal
22 Reserve can be considered expert.

23 Q. Are you suggest --

24 THE REPORTER: Can be
25 considered?

1 THE WITNESS: Expert.

2 Q. Are you -- are you suggesting that this
3 podcast is an authoritative statement by the
4 Federal Reserve system about the attributes of
5 money?

6 MR. OPPENHEIMER: Objection
7 to the form.

8 A. "Authoritative" is not defined.

9 Q. So is that a yes or a no?

10 MR. OPPENHEIMER: Objection.

11 A. That is -- we'd have to clarify the
12 definition of "authoritative" before I could
13 answer that question.

14 Q. Can we go over to page 13?

15 A. Sure.

16 Q. I'm sorry, paragraph 13, also on page 5.

17 You say "XRP serves all four functions
18 of a currency just discussed." And then you
19 indicate the different functions that you
20 described previously in your report.

21 Do you see that?

22 A. I do.

23 Q. Okay. Do you have a source for your
24 conclusion or are you the source for your
25 conclusion?

1 MR. OPPENHEIMER: Objection

2 to form.

3 Q. This is what I'm trying to get at: Are
4 you saying someone else already concluded that XRP
5 serves these functions or you, for the purpose of
6 this engagement, have drawn such a conclusion?

7 MR. OPPENHEIMER: Objection.

8 A. I -- I am stating that in -- my opinion
9 is in the report, I used the four functions
10 highlighted by academics, including economists and
11 others, and I identify how XRP serves those
12 functions.

13 So I am -- in this -- in this paragraph,
14 I am building on the consensus -- the consensus
15 among academics and using the facts that are
16 available to me to draw conclusions.

17 Q. Are you aware of any other economist
18 besides yourself that has evaluated XRP with
19 respect to the four functions of money, or
20 currency, and drawn the same conclusion you have?

21 A. No. I am not aware that economists have
22 made the specific attempt to characterize XRP in
23 terms of the functions of money.

24 Q. Okay. When you say that XRP is a "unit
25 of account" -- which I think is the last sentence

1 in paragraph 13.

2 Do you see that?

3 A. I do.

4 Q. What is XRP used to value? What are the
5 other things available to exchange that XRP is
6 used to value?

7 MR. OPPENHEIMER: Objection
8 to form.

9 You can answer.

10 A. I'd like to highlight that we've
11 addressed this question and I have clarified that
12 XRP is a medium of exchange between currencies and
13 that in that process, XRP is used to value
14 currency.

15 Q. Did you mean to include anything else in
16 your answer? I'm just trying to be complete.

17 MR. OPPENHEIMER: Objection
18 to the form.

19 A. I -- it's unclear what you mean by my
20 answer.

21 Q. Let me try to clarify.

22 Is XRP value -- I'm sorry.

23 Is XRP used as a unit of account for any
24 purposes other than currency trading?

25 MR. OPPENHEIMER: Objection

1 to form.

2 A. In some contexts, yes.

3 Q. What are those contexts?

4 A. There are -- there are websites where
5 one can purchase items priced in -- at least one
6 website I know of where one can purchase items,
7 goods, and -- goods and services, that are priced
8 in XRP.

9 But to recall, trading volume on -- the
10 def -- yeah. The definition of a medium of
11 exchange does not say that something has to be a
12 medium of exchange for everything at all times and
13 for all people. Clearly nothing is a medium of
14 exchange for everything at all times among all
15 people.

16 What I have highlighted is that XRP is a
17 medium of exchange among currencies daily and in
18 millions of transactions -- let me be precise.

19 Daily trading over ODL is measured,
20 according to my best estimate, in hundreds of
21 millions of XRP and -- so in that context, XRP is
22 being used as a medium of exchange every day in
23 substantial quantities. And because it's being
24 used as a medium of exchange in that context, when
25 in the conversion process, it is being used as a

1 unit of value, unit of account.

2 Q. Who is using ODL today?

3 MR. OPPENHEIMER: Objection

4 to form.

5 Q. To trade currencies.

6 A. Today specifically? I couldn't tell
7 you.

8 Q. How about at the time you issued your
9 report in October of 2021?

10 MR. OPPENHEIMER: Objection.

11 A. On any specific day, I -- that
12 information -- you could use the -- the ledger to
13 identify the accounts, but the specific exactly
14 who traded XRP over ODL on any given day is not
15 available unless one can identify backward from
16 the ledger accounts to the holder of the account.

17 Q. How about generally? Do you have any
18 understanding whether, in October of 2021, anyone
19 was using ODL to transact exchanges in foreign
20 currency?

21 MR. OPPENHEIMER: Objection

22 to form.

23 A. Total trading in XRP reached over 400
24 billion in the -- in Q3 and roughly a quarter of
25 that trading is estimated to go through ODL. Now,

1 Q3 ends in the end of September, but the
2 suggestion that all of a sudden there may have
3 been no ODL trading in October is interesting.

4 Q. All right. Well, it's your opinion.
5 I'm just trying to get the basis for it. I'm not
6 suggesting that all of my questions are correct,
7 as you've often pointed out.

8 Do you know whether -- whether Ripple
9 has a partner, someone that is using ODL to
10 transact foreign currency exchanges?

11 A. Yes.

12 MR. OPPENHEIMER: Objection.

13 THE WITNESS: Sorry.

14 Q. And as you sit here today, who is that?
15 Who are those companies or partners that are using
16 ODL in foreign currency exchange?

17 MR. OPPENHEIMER: Objection
18 to form.

19 You can answer.

20 A. As of the most recent time I looked at
21 this, those partners included SBI Financial in
22 Japan. Okay. I've got to remember these things.
23 Coin.ph. That's the Philippines one. There's
24 a -- oh, there are a bunch of them along the
25 Pacific Rim and the exact names of these accounts

1 I don't -- of these remittance providers I don't
2 precisely know. Those are two of them. There's
3 quite a list of them.

4 Q. Okay. And you think this trading's
5 continuing in significant amounts in at least Q3
6 of 2021?

7 MR. OPPENHEIMER: Objection.

8 You can answer.

9 A. The evidence available to me indicates
10 that it has.

11 Q. Okay. What evidence was available to
12 you? I think you mentioned a website, but I'm
13 trying to find out what source you looked at in
14 order to determine that.

15 MR. OPPENHEIMER: Objection.

16 A. So let's be clear. I did not opine on
17 this in my report, on the magnitude. I do not
18 have any facts or statements in there. I have
19 subsequently read up a little more just to keep
20 learning. And so -- I'm losing track. Remind me
21 the question.

22 Q. I'll transition a little bit.

23 You indicated in your testimony a few
24 moments ago that you thought that as of Q3 2021,
25 about 25 percent of the purchases of XRP were for

1 purpose of foreign exchange.

2 Is that a fair summary of your prior
3 testimony?

4 MR. OPPENHEIMER: Objection.

5 You can answer.

6 A. I said trading rather than purchases.

7 Q. Thank you for the clarification.

8 Do you think that 25 percent of the
9 trading in XRP is for purposes of foreign currency
10 exchange rather than for some other purpose?

11 MR. OPPENHEIMER: Objection
12 to form.

13 A. I -- no. I specifically referred to
14 ODL, trading on ODL, as 25 percent of trading in
15 XRP.

16 Q. Okay. Do you think ODL has other
17 purposes other than for foreign currency exchange
18 or am I understanding that that is the subset of
19 uses of XRP?

20 MR. OPPENHEIMER: Objection
21 to form.

22 A. My understanding is that that is the
23 primary purpose that -- the primary purpose is to
24 facilitate international payments, which has been
25 the strategical of Ripple since two thousand --

1 for roughly a decade now. And ODL is one of the
2 products that serves that purpose. And so far it
3 has been primarily direct -- or the -- my
4 understanding has been that Ripple wisely -- in
5 executing its strategy of disruptive innovation
6 and trying to achieve a network, that Ripple has
7 focused initially on remittances, which is not a
8 major focus in -- among most banks.

9 Q. All right. I promise we will get to all
10 of that in the future.

11 In terms of the trading in XRP which you
12 referred to a few moments ago, I don't think that
13 trading, those percentages, are referred to
14 anywhere in your initial or rebuttal report.

15 Is that fair?

16 A. That's correct.

17 Q. Okay. And would I be correct that in --
18 whatever source you used to learn about trading in
19 XRP would have come through a publication by
20 Ripple or an exchange associated with Ripple?

21 MR. OPPENHEIMER: Objection

22 to the form.

23 A. That question has a few different things
24 in there. Please, perhaps you could state it
25 individually.

1 Q. Sure. Sure.

2 What's your source for learning about
3 the trading of XRP?

4 A. Since I put out my report, Ripple issued
5 its Q3 report and that was summarized in a
6 techno -- oh, it's not clear what we call these
7 things.

8 Q. Publication?

9 A. Like a newspaper online.

10 Q. A publication?

11 A. And it's called Tech something or other.
12 TechNX or Tech -- Tech something.

13 Q. Okay.

14 A. And they reported on it.

15 Q. Okay. So the ultimate source would have
16 been Ripple, but the source that you consulted
17 would have been some online publication.

18 A. And then --

19 MR. OPPENHEIMER: Objection
20 to the form.

21 Q. Is that correct?

22 MR. OPPENHEIMER: Objection.

23 A. That is on the 25 percent figure.

24 Q. Okay.

25 A. The actual trading figures -- have we --

1 the 416 billion, that was a Ripple source. Yeah,
2 that was a Ripple source. Online.

3 Q. Okay.

4 A. Publicly available.

5 Q. Okay. So the other 75 percent of
6 trading in XRP --

7 A. Uh-huh.

8 Q. -- what's your understanding of what
9 that is?

10 MR. OPPENHEIMER: Objection
11 to form.

12 A. That really goes beyond the opinions
13 I've expressed and I have not thought carefully
14 about it, so I would not be able to say with any
15 certainty.

16 Q. So you don't know?

17 A. I would not be able to say with any
18 certainty.

19 Q. I'm not asking about a certain opinion.
20 I'm asking do you know? Do you have any
21 understanding?

22 MR. OPPENHEIMER: Objection
23 to form.

24 A. If we -- I'm -- if you -- okay. I had
25 said I could not say with any certainty.

1 Q. Sounds like -- sounds like that's all
2 you're willing say about that, is that correct?

3 MR. OPPENHEIMER: Objection.

4 A. I have said that I could not say with
5 any certainty.

6 Q. Do you believe that the majority of
7 trading in XRP is for investment purposes?

8 MR. OPPENHEIMER: Objection.

9 A. No.

10 Q. Am I correct that XRP is traded for fiat
11 currencies on digital -- on a number of digital
12 asset platforms?

13 MR. OPPENHEIMER: Objection.

14 You can answer.

15 A. That is my understanding, yes.

16 Q. And am I also correct that a number of
17 these dig -- of these digital asset platforms
18 would primarily be involved with other currency --
19 currencies other than the U.S. dollar?

20 MR. OPPENHEIMER: Objection

21 to the form.

22 A. I couldn't say.

23 Q. Okay. Let me ask you this: When XRP is
24 purchased or traded on digital asset platforms, is
25 it always purchased in U.S. dollars?

1 A. I couldn't say.

2 Q. Assuming for the purposes of this
3 question that XRP is sometimes purchased using
4 currencies other than U.S. dollars, does that
5 count as a currency exchange as you understand it?

6 MR. OPPENHEIMER: Objection.

7 You can answer if you
8 understand.

9 A. Currency exchange is not -- that would
10 need some definition.

11 Q. Okay. If someone in the Philippines,
12 hypothetically, wants to buy XRP because they want
13 to hold that token for some period of time, does
14 that purchase -- do you know whether that purchase
15 involves the use of fiat currency?

16 MR. OPPENHEIMER: Objection
17 to form.

18 You can answer.

19 A. If the Philippine pesos is involved?
20 That's a fiat currency. So, technically speaking,
21 a fiat currency would be involved.

22 Q. I'm not limiting myself to the
23 Philippine pesos.

24 Do you know whether any other fiat
25 currencies are involved in the purchase of XRP

1 from the Philippines?

2 MR. OPPENHEIMER: Objection
3 to the form.

4 A. Let me see how I can put this. I --
5 yeah. I think I would say that, no -- no. If
6 it's Philippine pesos versus XRP, there's one fiat
7 currency involved.

8 Q. Okay. As you sit here today, do you
9 know whether you can purchase XRP using Philippine
10 pesos?

11 A. Do you mean me personally?

12 Q. Not you. A person.

13 A. A person. Yes. That trader could be
14 me.

15 Q. Can XRP be purchased using yen?

16 A. Yes.

17 Q. Can it be purchased using pound
18 sterling?

19 A. I could not verify that one way or the
20 other.

21 Q. Can it be purchased using euros?

22 A. I could not verify that.

23 Q. Can it be purchased using Mexican pesos?

24 A. I am pretty certain it can.

25 Q. Can it be purchased using Bolivian or

1 Venezuelan currency?

2 A. I could not say.

3 Q. Do you know where XRP is actually being
4 used as a medium of -- medium of exchange among
5 other currencies?

6 MR. OPPENHEIMER: Objection
7 to form.

8 You can answer.

9 A. I know some of the corridors for
10 certain. The remittance service providers that
11 use it cover many, many locations and some are
12 worldwide. And exactly where XRP is or is not
13 being used would -- one could not say unless one
14 were to scan individually all the individual
15 service providers.

16 Q. Which are the ones that you know about?

17 A. Well, as I've mentioned, there's a list,
18 but the names do not all come to mind.

19 Q. You mentioned Japan.

20 A. I mentioned --

21 Q. You mentioned --

22 A. -- SPI in Japan and I mentioned Coins.ph
23 in the Philippines.

24 Q. Okay. Are you personally aware of other
25 locations, countries, where XRP uses a medium of

1 exchange among currencies?

2 MR. OPPENHEIMER: Objection
3 to the form.

4 You can answer.

5 A. I can say that XRP is -- no, I couldn't
6 say that it is in the sense that you can't track a
7 transaction.

8 Q. Okay.

9 A. I can say where remittance service
10 providers operate that have a relationship with
11 ODL. And those corridors include Singapore to a
12 lot of the Pacific Rim countries. Hong Kong to
13 Pacific Rim countries. Japan to Pacific Rim and
14 some other countries. Hong Kong, Singapore,
15 Japan, Taiwan.

16 So basically the more advanced countries
17 in the Pacific Rim to other Pacific Rim countries
18 and in some cases well beyond.

19 Q. Okay. This question may be beyond my
20 own technical expertise and you may or may not
21 know the answer, but just to try.

22 In -- let's pick one of these corridors
23 that you mentioned, the Philippines. Whatever the
24 name of that service provider or providers is, do
25 you know where that service provider sources its

1 XRP? In other words, where does it buy XRP?

2 MR. OPPENHEIMER: Objection
3 to form.

4 A. The -- on the ODL platform, it buys the
5 XR -- XR -- Ripple serves as market maker on XRP.

6 Q. Okay. And after the XRP is used as a
7 bridge asset, how does the service provider sell
8 XRP if it chooses to do so?

9 MR. OPPENHEIMER: Objection
10 to form.

11 A. So that was included implicitly in my
12 previous answer. A market maker will buy it and
13 sell it. And so Ripple's making markets both ways
14 in XRP.

15 Q. All right. Let's go to page 6,
16 paragraph 14. So feel free to refer to paragraph
17 14 and 15 if needed, but my question does not
18 specifically come from either of those paragraphs.
19 I want to ask you about price fluctuations in XRP.

20 You've indicated, I believe, in your
21 report that price fluctuations in an asset did not
22 mean it cannot be considered a currency.

23 Is that a fair summary of your view?

24 MR. OPPENHEIMER: Objection.

25 A. I've been quite specific -- I'm thinking

1 about it. I have highlighted that there are
2 currencies whose value is -- fluctuates that are
3 considered -- there are assets that are considered
4 currencies whose value fluctuate.

5 Q. In Figure 1, you mention the pound and
6 the dollar. In paragraph 15, you mention the
7 Venezuelan bolivar. So I'd like to draw your
8 attention to the last sentence in paragraph 14.
9 You say "The existence of day-to-day fluctuations
10 in XRP exchange rates does not change the nature
11 of XRP as a currency."

12 Do you see that?

13 A. I do.

14 Q. Okay. That's one of your conclusions in
15 this report, correct?

16 MR. OPPENHEIMER: Objection.

17 You can answer.

18 A. That -- it is -- no, it is not. It
19 is -- it is not a conclusion in my report.

20 Q. Do you believe this, this last sentence?
21 Is this a fair statement of your view?

22 MR. OPPENHEIMER: Objection
23 to form.

24 A. It is a fair -- it is a supporting
25 statement insofar as I highlight that -- so the

1 functions of a currency that I've identified and
2 the -- as consensus among economists and the
3 favorable attributes of an asset that help it
4 perform as a currency, I've highlighted that XRP
5 largely fulfills and I have -- or that XRP
6 fulfills the functions and has the attributes.

7 And I highlight -- essentially what I'm
8 highlighting is that it is never assumed in
9 defining money that its value is unchanging.

10 Q. Thank you. Perhaps I phrased my
11 question poorly. I was really trying to get at
12 something else.

13 You wrote this last sentence in
14 paragraph 14, correct? That's your work?

15 A. That is my work.

16 Q. And you're not citing to a publication
17 or to any other person, correct?

18 A. Yes.

19 Q. Okay. So that is a statement of belief
20 or view or opinion that you're offering in this
21 report, correct?

22 MR. OPPENHEIMER: Objection.

23 Q. Statement of your own view or belief,
24 correct?

25 MR. OPPENHEIMER: Objection.

1 A. Let's be clear. What I say is that --
2 is implicitly the same as what I just said to you.
3 That it's never assumed that a currency is -- has
4 no changes in its value and, therefore, whether it
5 has changes or not is -- does not change the
6 conclusion one way or the other.

7 Q. Do you know whether XRP has day-to-day
8 fluctuations in its exchange rates or are you
9 speaking hypothetically?

10 A. I am highlighting --

11 MR. OPPENHEIMER: Objection.

12 You can answer.

13 THE WITNESS: Oops, sorry.

14 MR. OPPENHEIMER: It's okay.

15 A. I cite in my rebuttal report a specific
16 volatility figure of .0083 percent over five
17 seconds indicating that the price has changed.

18 Q. So, I'm sorry, I was asking about
19 day-to-day fluctuations.

20 Do you know whether there are day-to-day
21 fluctuations in XRP exchange rates?

22 MR. OPPENHEIMER: Objection
23 to form.

24 A. By extrapolation from the volatility
25 figure I just gave you, there are day-to-day

1 fluctuations in XRP exchange rates just like there
2 are day-to-day fluctuations in other exchange
3 rates that are not government controlled.

4 Q. Okay. Am I correct that you have not
5 looked at the day-to-day fluctuations in XRP
6 exchange rates, or at least you had not done so at
7 the time you wrote this report?

8 MR. OPPENHEIMER: Objection.

9 A. No, that's not correct.

10 Q. Okay. So at the time you wrote this
11 report, you were aware of the day-to-day
12 fluctuation rates in the XRP exchange rate. Is
13 that fair?

14 MR. OPPENHEIMER: Objection.

15 A. This is putting words into my mouth. So
16 I was aware that -- I had seen charts of XRP value
17 and I -- I may have included one as a figure.
18 I've seen charts of the XRP value and that shows
19 that it changes.

20 Q. Okay. Are there any charts of changes
21 in XRP value in this report?

22 A. I don't believe I included one in the
23 end. No.

24 Q. Okay. You could have included such a
25 chart, correct?

1 A. They exist.

2 Q. You chose not to?

3 A. It did not seem useful.

4 Q. Did anyone tell you that it was not
5 useful?

6 A. No.

7 Q. Okay. That was your decision?

8 A. It was never a decision. I never
9 thought it -- I only think about charts that might
10 be useful and this one did not seem to have a
11 value.

12 Q. Okay. Figure 1 shows differences in
13 exchange rate between the United Kingdom pound and
14 the U.S. dollar, correct?

15 A. Yes, it does.

16 Q. How difficult would it have been you --
17 would it have been for you to show differences in
18 the price of XRP in U.S. dollars within the last
19 ten years?

20 MR. OPPENHEIMER: Objection
21 to form.

22 A. As I said, these charts exist.

23 Q. Would it have been difficult or not
24 difficult to do?

25 A. It would not have been --

1 MR. OPPENHEIMER: Objection.

2 THE WITNESS: Okay.

3 A. As I said, it would -- I did not think
4 one way or the other about including it.

5 Q. Well, let me flip that around then.

6 Why did you think about and include a
7 comparison between the UK pound and U.S. dollar
8 instead of, for example, showing variations in the
9 price of XRP over time?

10 MR. OPPENHEIMER: Objection.

11 You can answer.

12 A. It seemed intuitively obvious XRP value
13 changes. My point was to highlight that, first,
14 the relative point of comparison for the dollar is
15 its exchange rates. And, second, that the dollar
16 value does change dramatically.

17 So to support my point about the dollar,
18 the dollar chart was necessary and no other chart
19 was relevant.

20 Q. Thank you for that. Let's -- let's look
21 at paragraph 15.

22 When you talk about the Venezuelan
23 bolivar depreciating, it looks like dramatically
24 depreciating in 2018.

25 Do you see that?

1 A. Yes.

2 Q. What's your source for the changes in
3 the value of the bolivar?

4 A. I -- I don't provide it, but I would
5 have looked it up on Global Insight.

6 Q. I'm sorry, I didn't --

7 A. I would have gotten the data from Global
8 Insight.

9 Q. What is Global Insight?

10 A. It's a database that includes the IMF
11 exchange rate data and I would have looked at the
12 IMF exchange rate data.

13 Q. And is it a publicly-available database
14 or is it a private or pay for service database?

15 MR. OPPENHEIMER: Objection.

16 You can answer.

17 A. The -- the IMF data are publicly
18 available.

19 Q. What about the Global Insight?

20 A. Global Insight is a private thing.

21 Q. Okay.

22 A. In fact, come to think about it, I have
23 increasingly relied on the IMF source and I
24 realize chances are pretty good. I went straight
25 there.

1 Q. Okay. So perhaps you didn't use Global
2 Insight. You just went to -- are you saying you
3 probably just went to a publicly-available source?

4 A. The IMF provides the data publicly now.

5 Q. Okay. So since you mentioned the
6 significant depreciation of the bolivar, I want to
7 ask you some questions about currency depreciation
8 in general. I'm not referring specifically to the
9 bolivar, so don't confine your answer to the
10 bolivar if that's not appropriate.

11 Okay?

12 A. Uh-huh.

13 Q. What happens when a currency loses most
14 or all of its value?

15 MR. OPPENHEIMER: Objection
16 to form.

17 Q. Like, what is the reaction of people in
18 the economy if a currency loses most of its value?

19 MR. OPPENHEIMER: Objection.

20 A. I want to preface any answer by
21 highlighting as I did in my rebuttal to [REDACTED] and
22 as I said earlier today, that the relative
23 comparison to XRP prices is to exchange rates.
24 And so the important questions have to do with
25 exchange rates and -- right.

1 And so when a currency loses value,
2 which happens all the time around the world, it
3 generally is still used.

4 Q. Is it -- do people begin using other
5 currencies that hold their value more?

6 MR. OPPENHEIMER: Objection
7 to form.

8 A. Consistent with the fact -- as -- you'll
9 recall that in my report, I highlight functions of
10 a currency and helpful attributes of a currency.

11 So when a currency -- currencies gain
12 and lose value all the time and -- and even in
13 terms of goods and services, which, as I say, is
14 not relevant to XRP. And the -- and especially
15 they lose value all the time, right, and they
16 remain currencies.

17 So I think with respect to your
18 question, I realize that there's no time frame
19 addressed. So if you don't mind, I'd like to
20 highlight that most currencies have lost most of
21 their value in terms of goods and services over
22 the last century and they are still used as
23 currencies.

24 Q. Do some currencies go out of
25 circulation?

1 MR. OPPENHEIMER: Objection.

2 A. I wouldn't be able to say that
3 precisely.

4 Q. You don't know whether some countries
5 have discontinued using one form of currency and
6 begun using another?

7 MR. OPPENHEIMER: Objection.

8 A. I can remember one extreme case where I
9 believe that happened.

10 Q. Okay.

11 A. Anyhow, no, not precisely.

12 Q. Do people begin preferring other
13 currencies if a -- if a currency loses most or all
14 of its value?

15 MR. OPPENHEIMER: Objection.

16 A. In general, no.

17 Q. And does that have anything to do with
18 the fact that the fiat currency in a particular
19 jurisdiction is required to be accepted as legal
20 tender?

21 MR. OPPENHEIMER: Objection.

22 A. No.

23 Q. Have there been cryptocurrencies that
24 have lost most or all of their value?

25 MR. OPPENHEIMER: Objection.

1 A. I -- bitcoin's gone up and down.

2 Q. Do you know whether there have been
3 cryptocurrencies that have lost most or all of
4 their value?

5 MR. OPPENHEIMER: Objection
6 to form.

7 A. I couldn't say.

8 Q. So would it be fair to say that you
9 don't know what happens if a cryptocurrency loses
10 most or all of its value?

11 MR. OPPENHEIMER: Objection
12 to form.

13 A. It would be fair to say that the
14 definition of losing most or all of its value is
15 vague and would need to be defined more precisely.

16 Q. Do you know whether there have been any
17 cryptocurrencies that have ceased to be circulated
18 or accepted because they're no longer considered
19 to have any value?

20 MR. OPPENHEIMER: Objection
21 to form.

22 A. I couldn't say.

23 Q. Hypothetically, if there was such a
24 currency, we'll call it ABC, that had a value at
25 one point and now has a value of zero, meaning no

1 one will accept it, would the people holding or
2 still holding ABC be able to use it for any
3 purpose?

4 MR. OPPENHEIMER: Objection
5 to form.

6 A. You know, this is a hypothetical. I
7 really am not in a position to speculate on it.

8 Q. All right. Let me put it a different
9 way.

10 If XRP were to lose most or all of its
11 value, do you know whether the people who hold XRP
12 right now would be able to get their investment,
13 initial investment, in XRP back?

14 MR. OPPENHEIMER: Objection
15 to the form.

16 A. In any case --

17 MR. OPPENHEIMER: Wait.

18 THE WITNESS: Oh, I'm sorry.

19 MR. OPPENHEIMER: Assumes
20 facts not in evidence,
21 mischaracterizes facts, and vague and
22 ambiguous.

23 You can answer.

24 A. Could you restate the question?

25 MR. MOYE: Could you read it

1 back, please?

2 (Whereupon, the record was read
3 back.)

4 A. No, I do not know.

5 Q. Are you familiar with the term
6 "intrinsic value"?

7 THE REPORTER: I'm sorry?

8 Q. Are you familiar with the term
9 "intrinsic value"?

10 A. Yes, I'm familiar with the term.

11 Q. What does that mean as -- as you or
12 other economists use that term?

13 MR. OPPENHEIMER: Objection.

14 You can answer.

15 A. I would say that it has no fixed
16 definition. That it's -- it has no fixed
17 definition.

18 Q. What does it mean to you personally
19 then?

20 A. It depends on the context.

21 Q. Does XRP have an intrinsic value?

22 MR. OPPENHEIMER: Objection.

23 A. Again, since it's not defined, I can't
24 answer that question.

25 Q. Does the U.S. dollar have an intrinsic

1 value?

2 A. Since it's not defined, I can't answer
3 that question. Oh, I'm sorry. I can't answer
4 that question.

5 Q. Does gold or cattle have an intrinsic
6 value?

7 MR. OPPENHEIMER: Objection.

8 A. Again, without a very careful
9 definition, I can't answer the question.

10 Q. Let's look at paragraph 16 of your
11 report. You indicate that The Federal Reserve
12 identifies six attributes that enhance the value
13 of a currency and then you state what those
14 attributes are, correct?

15 A. That's correct.

16 Q. And you also have a cite, a citation to
17 a source, is that right?

18 A. Yes.

19 Q. What is the source for that -- what is
20 your source for that statement?

21 A. The Federal Reserve Bank of St. Louis,
22 the piece that I chose because it's accessible.

23 Q. Was the podcast and transcript piece
24 credible?

25 A. Correct.

1 Q. Okay. And do you believe that's a
2 consensus or are you attributing some special
3 authority to the Federal Reserve Bank?

4 MR. OPPENHEIMER: Objection
5 to form.

6 A. The -- I'm -- I can -- it -- it captures
7 the consensus.

8 Q. Okay. So there's no --

9 A. I highlight there are some other things
10 that come up in some other context and it's
11 broadly characterized as a consensus.

12 Q. Sure. So it's not the only source you
13 cite in this paragraph. There are some others as
14 you said.

15 But in -- in the first sentence, when
16 you say that the Federal Reserve, the world's
17 dominant bank, identifies six attributes for
18 the -- to enhance the value of currency, I just
19 wanted to know if you were -- if you believe the
20 Federal Reserve is stating the consensus among
21 economists or is this a unique view that has
22 special significance because it is from the
23 Federal Reserve Bank?

24 MR. OPPENHEIMER: Objection
25 to form.

1 A. It is -- it is not intended as -- it --
2 so it's -- as I say, there's no formal consensus
3 among economists on -- on exact properties.
4 There's just a lot of properties that are often
5 listed. And the Federal Reserve Bank of St. Louis
6 has a listed -- the list includes properties that
7 are generally listed.

8 Q. What does this series of attributes add
9 to your analysis of XRP?

10 MR. OPPENHEIMER: Objection
11 to form.

12 A. The analysis highlights attributes of an
13 asset that help it function as money and -- yes,
14 that's what it does.

15 Q. And you talk about cows and even
16 boulders in Micronesia. These -- these have all
17 been used as money, correct?

18 A. They have -- they're included in the
19 list of things that have been used as money.

20 Q. But they don't fit as well in these
21 attributes of money as specified by the Federal
22 Reserve, correct? That's why you mention them?

23 MR. OPPENHEIMER: Objection
24 to form.

25 A. These are helpful and it's a care --

1 it's a -- it's important to be clear that none of
2 them are neither -- they are neither necessary nor
3 sufficient. They are helpful. So cows are --
4 fail on one of -- you know, do not fulfill one of
5 these, I think divisibility, but it was still used
6 as money.

7 So to illustrate, yes.

8 THE REPORTER: So?

9 THE WITNESS: To illustrate,
10 yes.

11 Q. And boulders, they don't fit all these
12 categories, but boulders have still been used as
13 money, correct?

14 A. Specifically on the island of Yap in
15 Polynesia. And this is another -- like the
16 Radford article about cigarettes, this is another
17 piece that economists like to cite.

18 Q. Okay. So I'm -- I'm asking. I'm
19 curious. Why include this? What does this add to
20 your analysis of XRP if you say in the same
21 paragraph that even things that don't have all of
22 these attributes can still be used as money?

23 MR. OPPENHEIMER: Objection
24 to form.

25 A. The point in adding that paragraph is

1 that XRP has all of these helpful attributes.

2 Q. Like cowrie shells?

3 A. I'd have to rethink through the cowrie
4 shells, but, yes.

5 Q. Let's look at paragraph 17 where you
6 talk about cowrie shells.

7 A. Yeah.

8 Q. Feel free to review that. I'm going to
9 ask you a couple of questions about cowrie shells.

10 A. Ready to go.

11 Q. Okay. You point out in paragraph 17
12 that cowrie shells have all of these attributes of
13 money identified by the Fed, correct?

14 A. Yes, I go through those six or seven.

15 Q. Okay. So, again, similar question about
16 the cows.

17 What does the discussion of cowrie
18 shells add to your analysis of XRP as a currency?

19 MR. OPPENHEIMER: Objection
20 to form.

21 You can answer.

22 A. The cowrie shells were included as a way
23 of clarifying what the attributes mean. So
24 divisibility, portability, et cetera. That is the
25 sense in which cowrie shells were included. They

1 were an illustration for point of clarification.

2 Q. Do cowrie shells have an intrinsic value
3 independent of whether or not they're used as
4 currency?

5 MR. OPPENHEIMER: Objection
6 to form.

7 A. As I have said, intrinsic value is not
8 defined in this conversation.

9 Q. Are cowrie shells used in art among
10 people in Africa?

11 MR. OPPENHEIMER: Objection.

12 A. I could not say.

13 Q. So you can't say whether that artwork
14 using or consisting with cowrie shells is
15 considered valuable today?

16 MR. OPPENHEIMER: Objection.

17 A. I did not agree -- the premise of your
18 question is that I agreed that there was such art
19 and I have not agreed that there was such art.

20 Q. Let me clarify.

21 Since you don't know whether cowrie
22 shells are used in art, you can't say whether
23 cowrie shells used in artwork retain a value
24 today, can you?

25 MR. OPPENHEIMER: Objection.

1 A. This hypothetical extends way beyond
2 what I was asked to look at in my opinion as is
3 clear from -- would be clear from a quick review
4 of the questions I was asked. And so I was not in
5 a position to formulate an opinion on these
6 questions.

7 Q. Fair enough.

8 You drive a direct comparison between
9 how cowrie shells fit the attributes of money from
10 the Fed and how XRP, in your view, fits those
11 attributes of money, correct?

12 A. Not correct.

13 Q. So there's no connection between your
14 discussion of cowrie shells and your connection of
15 XRP? Is that your testimony?

16 MR. OPPENHEIMER: Objection
17 to the form.

18 A. My use of cowrie shells, as I answered
19 earlier, is intended to clarify the meaning of the
20 attributes in question. What is divisibility?
21 What is portability? I do not directly compare
22 cowrie shells with XRP in any way.

23 Q. So when you say, then, that cowrie
24 shells were a highly successful form of currency
25 for centuries, and then you follow in the very

1 next paragraph with a discussion of XRP's
2 satisfaction of the same attributes, were you
3 intending to suggest that XRP might function as a
4 currency for centuries in the same way that cowrie
5 shells did?

6 MR. OPPENHEIMER: Objection

7 to form.

8 A. That is a -- that is a complete
9 mischaracterization of what I might have to say in
10 there.

11 Q. Fair enough. So it sounds like you
12 disagree.

13 There's no connection between the
14 status, then, of cowrie shells as a successful
15 currency and whether or not XRP is a successful
16 currency. Is that fair?

17 MR. OPPENHEIMER: Objection

18 to form; mischaracterizes testimony
19 and vague and ambiguous.

20 A. Let me clarify again. I included cowrie
21 shells to clarify the definitions of the
22 attributes that are helpful for an asset to
23 function as a currency. That is the purpose of
24 including cowrie shells there.

25 Q. And it sounds like that's the only

1 purpose you have.

2 A. That is the only purpose.

3 Q. All right. In the beginning of
4 paragraph 18 of your report, you say "'XRP has all
5 of the attributes that economists agree to be
6 valuable in a currency."

7 Do you see that?

8 A. I was referring back to the list of
9 seven that I had before.

10 Q. Okay. So am I correct that you are
11 stating in your report that economists -- the
12 consensus of economists agree that these
13 attributes contribute or enhance the value of
14 money?

15 MR. OPPENHEIMER: Objection.

16 You can answer.

17 A. It enhances the ability of an asset to
18 serve as money. I say nothing about the value of
19 money.

20 Q. So at the beginning of paragraph 16 of
21 your report --

22 A. Paragraph 16.

23 Q. -- the first sentence, when you're
24 identifying the attributes sourced from the Fed,
25 you say there that these attributes "enhance the

1 use value of a currency."

2 Is there a difference in your mind
3 between the value of a currency and the use value
4 of a currency?

5 MR. OPPENHEIMER: Objection.

6 A. Use value would be synonymous with what
7 I just said. The ability of a currency or money
8 to serve that function, or an asset as I have been
9 specific. The ability of an asset to serve the
10 functions of money.

11 Q. Does use value mean utility? Is that --

12 A. It means the ability of an asset to
13 fulfill the functions of money.

14 Q. Okay. Do other -- you -- you've
15 indicated in paragraph 18 that XRP has all of
16 these attributes that could contribute to its
17 usefulness as a currency.

18 Do most cryptocurrencies have these same
19 attributes as XRP?

20 MR. OPPENHEIMER: Objection
21 to form.

22 A. I wouldn't be able to say.

23 Q. Does bitcoin?

24 A. I'd have to think carefully about each
25 one.

1 Q. It's not a test, but if you -- if you
2 want to take a moment, if that would help you to
3 give me an answer, that's fine. If you cannot
4 give me an answer, we can move on. But if you
5 have an answer, I'm interested.

6 MR. OPPENHEIMER: Objection
7 to form.

8 A. So I would say that -- so -- could
9 you -- could you repeat the question precisely
10 now?

11 Q. Well, let me break it down. Maybe that
12 would be helpful.

13 A. Okay.

14 Q. So you compared XRP to these attributes
15 of a currency. So I'm asking you about bitcoin.

16 A. Uh-huh.

17 Q. So without giving me a considered or
18 written deposition -- definition, but just as you
19 understand it here, do you believe bitcone --
20 bitcoin is portable in the same way XRP is
21 portable?

22 MR. OPPENHEIMER: Objection.
23 You can answer.

24 A. Yes.

25 Q. Do you believe bitcoin is divisible in

1 the same way XRP is divisible?

2 A. Yes.

3 Q. In fact, you even refer to bitcoin as a
4 coin comparison.

5 A. I do.

6 Q. Do you believe bitcoin is uniform like
7 XRP is uniform?

8 A. Yes.

9 Q. Do you believe bitcoin is acceptable in
10 the same way you believe XRP is acceptable?

11 A. There are differences in the
12 acceptability that are important.

13 Q. Do you believe bitcoin is accepted on
14 more -- do you believe bitcoin is traded on more
15 or less exchanges than XRP?

16 MR. OPPENHEIMER: Objection
17 to the form.

18 A. That is not directly related to what I
19 had to say.

20 Q. So you don't have an opinion on whether
21 bitcoin is traded more frequently or less
22 frequently on exchanges?

23 A. I have differences. I did not suggest
24 more or a fewer exchanges.

25 Q. Okay. We'll come back to exchanges in a

1 moment but let's talk about storage costs.

2 Do you believe bitcoin has low storage
3 costs the way XRP does?

4 A. I believe so.

5 Q. And do you believe bitcoin has limited
6 supply the way XRP is limited?

7 A. Yes.

8 Q. All right. Let's go back to the
9 attribute you highlight acceptability. You say
10 "XRP can be traded on myriad exchanges around the
11 world." I'd like to drill down on this is a
12 little bit.

13 When you include this sentence, are you
14 referring to the currency trading aspect --
15 sorry -- the currency trading function of XRP that
16 we discussed earlier in the deposition or are you
17 referring to something like an exchange for goods
18 or services?

19 MR. OPPENHEIMER: Objection
20 to form.

21 A. It's not either/or and the question does
22 not include all the different kinds of trading
23 that I might have had in mind.

24 Q. Okay. So you reference exchanges and
25 you say "myriad exchanges," which I understand to

1 mean many. Is that what you meant by "myriad"?

2 A. Many, yes.

3 Q. Okay. So how is XRP traded on many
4 exchanges around the world? You've already talked
5 about foreign currency exchange, so you don't need
6 to repeat any of that.

7 Are there other purposes for which XRP
8 is traded on exchanges around the world that you
9 meant to include in this answer?

10 MR. OPPENHEIMER: Objection
11 to form.

12 A. Actually, could you just restate the
13 question? It was a long one.

14 Q. Yeah. I'm not asking about foreign
15 currency trading. We've already talked about
16 that.

17 In your description of XRP's
18 acceptability --

19 A. Uh-huh.

20 Q. -- and your reference to it being traded
21 on many exchanges around the world, what other
22 purposes -- for what other purposes is XRP traded
23 besides foreign currency exchange?

24 MR. OPPENHEIMER: Objection
25 to form.

1 A. If I could be clear, I was not asked to
2 opine on those subjects and I do not offer an
3 opinion.

4 Q. Okay. Do you have an understanding,
5 even if you're not offering an opinion, of why XRP
6 might be traded if it's not being used in a
7 foreign currency exchange transaction?

8 A. You know --

9 MR. OPPENHEIMER: Objection
10 to form; calls for speculation.

11 You can answer.

12 A. I could speculate, but that would not be
13 of any use to the court.

14 Q. Well, it might be of use to me in
15 helping understand and I understand the caveat
16 that you're speculating. You're not prohibited
17 from speculating as long as you indicate that's
18 what you're doing.

19 Is your answer that XRP is traded on
20 many exchanges around the world, does that also
21 include people who buy XRP for investment
22 purposes?

23 MR. OPPENHEIMER: Objection
24 to both the instruction, if there is
25 one, and -- and the question.

1 You can answer.

2 THE WITNESS: Right. I'm
3 thinking about it.

4 A. Yes, there are people who hold XRP as a
5 store of value.

6 Q. As investors. Is that a fair summary?

7 A. As --

8 MR. OPPENHEIMER: Objection;
9 mischaracterizes.

10 You can answer.

11 A. As a store of value.

12 Q. All right. It sounds like that's all
13 you're going to say. So let me -- let me ask my
14 question a little bit differently.

15 Assume for the purpose of this question
16 there are three buckets for purposes of which
17 people purchase XRP. One is foreign currency
18 exchange. We're not going to talk about that.
19 One is purchasing for goods and services. We're
20 not going to talk about that. We're going to talk
21 about the store of value. Is that -- was that the
22 term you used a minute ago?

23 A. That's the term I used.

24 Q. Okay. So we're going to talk about the
25 bucket for store of value.

1 You believe that there are people that
2 purchase XRP because it's a good store of value.
3 Is that fair?

4 MR. OPPENHEIMER: Objection
5 to the form.

6 You can answer.

7 A. I do not have an opinion and I say
8 nothing about XRP as a -- in that context in my
9 report and I have not thought -- it's just not
10 something I'm prepared to discuss. It's not part
11 of my report.

12 Q. All right.

13 A. And it's not something I'm prepared to
14 discuss.

15 Q. This may be my misunderstanding and not
16 anything that you've said or not said today, so I
17 want to take responsibility for that.

18 But you say XRP is traded on a myriad
19 exchanges and that's one reason it should be
20 considered a currency. And so I'm asking you
21 whether you, in reaching that conclusion, whether
22 you considered people who purchased XRP solely
23 because it's a store of value, in other words an
24 investment, in rendering an opinion that it should
25 be considered a currency.

1 MR. OPPENHEIMER: Objection

2 to the form.

3 A. I did not. Let's be clear. What I say
4 is it can be traded on myriad exchanges. What I
5 considered was where can it be traded. I did not
6 consider who's trading it for what purposes.

7 Q. Okay. So the purpose is beside the
8 point?

9 A. That's correct.

10 Q. All right. Thank you for that
11 clarification.

12 Do you have an opinion about whether
13 bitcoin should be considered currency?

14 A. No.

15 Q. Do you know whether there's any debate
16 among economists whether bitcoin should be
17 considered a currency?

18 MR. OPPENHEIMER: Objection

19 to form.

20 A. I have not delved into it.

21 Q. I'm sorry, is that a yes or a no? I
22 just want to know whether you're aware.

23 MR. OPPENHEIMER: Objection.

24 You can answer.

25 A. I am aware that economists have opined.

1 Q. Okay. Thank you.

2 MR. MOYE: This is probably
3 a good place for a lunch break if
4 that's okay with you guys.

5 MR. OPPENHEIMER: Sure.

6 THE WITNESS: Sure.

7 THE VIDEOGRAPHER: Okay.

8 Going off the record at 12:29.

9 (Whereupon, a luncheon recess
10 is taken.)
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1 A F T E R N O O N S E S S I O N

2 THE VIDEOGRAPHER: Okay.

3 Back on the record at 1:23.

4 BY MR. MOYE:

5 Q. Professor Osler, before we go on, I'd
6 like to sort of go back for a second to something
7 we discussed earlier in the day.

8 Do you remember me asking you about
9 whether there was a hierarchy of functions of
10 money between --

11 A. Yes.

12 Q. -- the method of -- means of exchange,
13 store of value, and unit of account?

14 Are you familiar with an economist named
15 Michael Woodford --

16 A. Yes.

17 Q. -- at Columbia University?

18 A. I know -- I'm familiar with Michael
19 Woodford.

20 Q. Okay. Are you familiar with his book,
21 Interest and Prices: Foundations of a Theory of
22 Monetary Policy?

23 A. No, I'm not familiar with the book.

24 Q. Okay. If -- do you know whether he is
25 one of the economists that believes that money's

1 function as a unit of account is the most
2 important criteria in its definitions?

3 MR. OPPENHEIMER: Objection
4 to form.

5 A. I don't know that any economists make
6 that statement.

7 Q. You're not denying that he's made such a
8 statement, are you?

9 MR. OPPENHEIMER: Objection.

10 Q. You're just saying you're not aware of
11 it?

12 MR. OPPENHEIMER: Objection.

13 A. That's correct. I'm not denying that
14 Michael Woodford made that statement.

15 Q. Okay. You are saying you're not aware
16 of it so you never considered -- had to consider
17 it, is that right?

18 MR. OPPENHEIMER: Objection.

19 You can answer.

20 A. There's two parts to that and I need to
21 disentangle them.

22 Q. All right. So, to clarify, since you
23 weren't -- you're not denying that he made such a
24 statement, but you're not aware that he -- whether
25 or not he's made such a statement, correct?

1 A. That is correct.

2 Q. And because you're not aware of it,
3 you've never had the occasion to consider whether
4 you would agree or disagree with that statement if
5 made by Professor Woodford, is that right?

6 MR. OPPENHEIMER: Objection.

7 A. I'd just like to highlight, my opinion
8 did not ask me about the hierarchy of functions.
9 It's not considered in my report. I'm not aware
10 of a consensus on a hierarchy of functions. It's
11 just not something I'm -- that's in my opinion at
12 all.

13 Q. Fair enough. So let's return to page 8
14 of your report, paragraph 18.

15 So previously I was asking what you
16 meant or intended by some of the statements about
17 XRP serving various functions of money. I'd like
18 to now ask questions about your sources.

19 So for the previous -- for the statement
20 we've been talking about previously,
21 "Acceptability: XRP can be traded on myriad
22 exchanges around the world."

23 What's the source of your understanding
24 that XRP can be traded on many exchanges around
25 the world?

1 MR. OPPENHEIMER: Objection

2 to form.

3 You can answer.

4 A. There was no -- so I -- I -- I couldn't
5 place the source for that. It's just sort of
6 everywhere.

7 Q. I want to focus on the fact that you say
8 "XRP can be traded on myriad exchanges around the
9 world."

10 Those are your words, correct?

11 A. Uh-huh.

12 Q. Counsel didn't tell you to use those
13 words, right?

14 A. That's attorney --

15 MR. OPPENHEIMER: Objection.

16 I instruct you not to discuss the
17 substance of communications with
18 counsel.

19 Q. Okay. So we can't presume one way or
20 the other whether anyone instructed you to pick
21 those words, choose those words?

22 MR. OPPENHEIMER: Objection

23 to the form.

24 A. I -- what I specified is that we cannot
25 assume one way or the other that counsel

1 instructed me to specify those words.

2 Q. Okay. But you chose those words. Can
3 we agree on that?

4 A. I chose those words.

5 Q. Okay. So you must have had some source,
6 correct?

7 A. (No verbal response.)

8 Q. Can you tell us about any source other
9 than counsel where you might have learned or
10 formed the conclusion that XRP can be traded on
11 many exchanges around the world?

12 MR. OPPENHEIMER: Objection.

13 You can answer.

14 A. I don't -- don't remember the source for
15 that information.

16 Q. Okay. How about the timing? So you
17 wrote this report or signed this report in October
18 of 2021 and your -- your statement is in the
19 present tense.

20 So was that your understanding of
21 when -- of the fact that XRP could be traded in
22 October of 2021 on many exchanges around the world
23 or, as an alternative, is it possible you were
24 thinking historically that maybe XRP had been
25 traded on many exchanges around the world?

1 MR. OPPENHEIMER: Objection

2 to form.

3 A. Was I thinking about at the time versus
4 historically?

5 Q. Yes.

6 A. I was thinking about -- the intention of
7 my opinion is to say that -- let me just see it.
8 "Can be traded" is to refer to the present.

9 Q. Is XRP traded on more exchanges in 2021
10 than in 2020 or less?

11 MR. OPPENHEIMER: Objection

12 to form.

13 A. I don't make any statement about that in
14 my opinion.

15 Q. Do you have any understanding?

16 A. I do not, no.

17 Q. Okay. So your statement "units of XRP
18 can be accessed anywhere one finds an internet
19 connection," do you have a source for that
20 statement? Source of your understanding. Not --
21 not a source for the particular statement, but a
22 source for your understanding.

23 MR. OPPENHEIMER: Objection

24 to form.

25 A. Yeah. My under -- to me, that was

1 intuitively obvious.

2 Q. All right. How about XRP is stored in
3 wallets and how much it cost for an on-ledger
4 electronic repository? You do have a footnote
5 there.

6 Can you clarify your source for that
7 statement about XRP wallets?

8 MR. OPPENHEIMER: Objection
9 to form.

10 A. A clarification in the sense of what?

11 Q. Yeah. Is this where you got that
12 information?

13 A. Yes.

14 Q. Or is this just one of many sources that
15 you may have consulted?

16 MR. OPPENHEIMER: Objection
17 to form.

18 A. I got the specific prices from this
19 source.

20 Q. Okay. So your understanding about
21 "Wallet security is high because ledgers are
22 maintained on many independent servers around the
23 world and updated frequently."

24 Can you tell us where you gained your
25 understanding of that fact or assertion?

1 A. That follows from the nature of the XRP
2 ledger.

3 Q. And how did you learn about the XRP
4 ledger? From which source?

5 A. I read --

6 MR. OPPENHEIMER: Objection
7 to form.

8 You can answer.

9 A. I learned about the XRP ledger in the
10 XRP -- the -- the white paper on the voting
11 protocol procedure that's used to verify
12 transactions on the XRP ledger.

13 Q. All right. And how about limited
14 supply? "Long-term supply of XRP is limited to
15 the 100 billion already in existence. No
16 additional units can be created without changing
17 the XRP ledger itself."

18 What's the -- what's your source of your
19 information for that understanding?

20 A. That was -- that's just on the Ripple
21 website. That's everywhere.

22 Q. Okay. Professor Osler, would it be fair
23 to say, generally, if not specifically, that most
24 of your understanding of what XRP is and how it
25 functions and how it can be used was gained during

1 this litigation from materials published or
2 provided by Ripple?

3 MR. OPPENHEIMER: Objection
4 to form.

5 A. I couldn't say.

6 Q. Did you know very much about XRP before
7 you became an expert in this case?

8 A. As I said, I did not.

9 Q. Did you have sources other than your
10 review for this case to learn about XRP and how
11 it's used and how it can function?

12 MR. OPPENHEIMER: Objection
13 to form.

14 A. I -- you know, I listed all the sources
15 here. I don't have them all fresh in my mind, so
16 I just really couldn't say.

17 Q. I understand and this is not a memory
18 test for any particular fact.

19 But you did indicate that you thought
20 there were some sources that you cited, but they
21 were one of among several that you could have
22 cited. So I'm trying to find out if statements
23 about XRP wallets and statements about the
24 durability or creation of XRP, whether the sources
25 you would have consulted to learn that information

1 must have come from Ripple.

2 MR. OPPENHEIMER: Objection
3 to form.

4 A. No.

5 Q. Were there third-party sources you
6 consulted to learn about Ripple?

7 MR. OPPENHEIMER: Objection.
8 You can answer.

9 A. Some of these are just intuitively
10 obvious from the nature of the -- of XRP.
11 Durability.

12 Q. How about limited supply? I think
13 that's what I was asking before we got into this
14 line of questions. "Long-term supply of XRP is
15 limited to the 100 billion already in existence."

16 I'm not saying that's wrong. I'm just
17 saying how do you know or how did you learn that
18 fact?

19 A. I don't remember the precise source for
20 that particular fact. It's all over the web.

21 Q. Okay. And I understand that caveat.
22 What I am asking is, would you agree with me that
23 it is more likely than not that the sources on the
24 web that you consulted in order to learn this
25 information were most likely sources from Ripple?

1 Like postings or information that Ripple gave --
2 Ripple gave to another publication.

3 MR. OPPENHEIMER: Objection
4 to the form.

5 A. I would not agree.

6 Q. Okay. Do you think it's more likely
7 than not that the information in here about XRP
8 comes from third parties than that it comes from
9 Ripple?

10 MR. OPPENHEIMER: Objection
11 to the form.

12 A. That's the reverse of the previous
13 question, so I don't have an opinion.

14 Q. All right. Would I be correct that you
15 had no way of independently verifying -- from
16 whatever source you learned this information about
17 XRP, you wouldn't have any way to independently
18 verify whether there's only 100 billion XRP in
19 existence?

20 MR. OPPENHEIMER: Objection
21 to form.

22 A. So in my function of bringing the
23 understanding from the academic community, general
24 consensus understanding, to bear on the facts of
25 the case, I have taken the hundred billion of XRP

1 that is discussed very commonly whenever XRP comes
2 up online as a fact.

3 Q. Okay. So without overstating or putting
4 words in your mouth, is it fair to say that what
5 you learned about XRP that did not come from
6 counsel came from your review of sources on the
7 internet?

8 MR. OPPENHEIMER: Objection
9 to form; mischaracterizes testimony.

10 A. I've said that I have taken the hundred
11 billion dollar limit as a fact from different
12 things I've read.

13 Q. I agree with that and I'm not -- I'm not
14 trying to change your answer. I'm asking you
15 about the whole corpus of information that you
16 learned about XRP which you applied to the
17 consensus from various economists.

18 If you didn't get it from counsel, did
19 you get it from the internet?

20 MR. OPPENHEIMER: Objection
21 to form.

22 A. I downloaded information that is
23 available on the internet.

24 Q. All right. As you sit here today, do
25 you have any way to know what merchants have

1 actually accepted XRP as a medium of exchange for
2 goods or services?

3 MR. OPPENHEIMER: Objection
4 to the form.

5 A. Do you mean for individual specific
6 transactions do I know whether merchants have
7 accepted XRP?

8 Q. No. I'm trying to clarify an earlier
9 point. You said you're aware of a number of
10 merchants that might be willing to accept XRP.
11 They can accept XRP.

12 A. Uh-huh.

13 Q. So I'm asking you a subset question.

14 Do you know, even if a merchant is
15 willing to accept XRP, have they actually done so?

16 MR. OPPENHEIMER: Objection
17 to form.

18 You can answer.

19 A. Oh, that was not required for forming my
20 opinions and I -- I can't say that I called any of
21 those merchants up and said, gosh, have you
22 actually done it?

23 Q. All right. Would the same thing be true
24 about unit of account?

25 MR. OPPENHEIMER: Objection

1 to form.

2 Q. Whatever opinion you've offered about
3 who or the type of entities use XRP as a unit of
4 account, you didn't have a reason or occasion to
5 independently verify that?

6 MR. OPPENHEIMER: Objection

7 to form.

8 A. I have downloaded information from the
9 web about the extent of transactions on the
10 ledger. And I have taken that as factual.

11 Q. Okay.

12 A. And -- which means that because on -- as
13 I've said, when it -- XRP is used as a medium of
14 exchange on the ODL letter -- ledger, it is being
15 used as a unit of account.

16 Q. Okay.

17 A. So I do have -- that is substantial.

18 Q. That was your source?

19 A. I'm sorry?

20 MR. OPPENHEIMER: Objection.

21 Q. You just described a source --

22 A. Not an individual source.

23 Q. Not an individual source. Those are
24 your sources of information.

25 MR. OPPENHEIMER: Objection

1 to the form.

2 A. Again, that's -- there was no source
3 listed. There was a type of information listed in
4 my statement.

5 Q. Okay. All right.

6 (Whereupon, exhibit is received
7 and marked SEC Osler Deposition Exhibit 2
8 for identification.)

9 BY MR. MOYE:

10 Q. I'd like to hand you -- so we'll make
11 this quick. I apologize. I should have handed
12 this to you earlier since we talked about it. I
13 just want to get your identification.

14 THE REPORTER: Exhibit 2 for
15 identification.

16 MR. MOYE: Exhibit 2 for
17 identification.

18 Q. So Exhibit 2 is a printout with Federal
19 Reserve of St. Louis at the top and the title is
20 "Functions of Money - The Economic Lowdown Podcast
21 Series" dated August 9th, 2012.

22 Okay. Professor Osler, do you believe
23 this is the transcript of the podcast that we
24 discussed earlier about the functions of money
25 from the Federal Reserve of St. Louis?

1 A. I'm willing to take it as such since you
2 represent it as such.

3 Q. Does it look to you like it's the same
4 thing you consulted in preparing your report?

5 A. I --

6 MR. OPPENHEIMER: Objection
7 to form.

8 You can answer.

9 A. Okay. To be honest, I don't remember
10 what it looked like.

11 Q. All right. That's fine. You can put
12 that aside.

13 Now we're going to look at something
14 new.

15 MR. MOYE: Do you mind
16 handing one to the court reporter as
17 well? Thank you so much.

18 (Whereupon, exhibit is received
19 and marked SEC Osler Deposition Exhibit 3
20 for identification.)

21 THE REPORTER: Exhibit 3 for
22 identification.

23 MR. MOYE: Okay.

24 BY MR. MOYE:

25 Q. Professor Osler, I've handed you what's

1 been marked as -- sorry -- as Exhibit 3. At the
2 top is an NBER Working Paper Series. The title is
3 "Is Bitcoin a Real Currency?" And it's by David
4 Yermack and the date is December 2013.

5 Do you see that?

6 A. I do.

7 Q. Are you familiar with the National
8 Bureau of Economic Research?

9 A. I am.

10 Q. Is this an -- an entity that you were
11 associated with earlier in your career?

12 A. I was.

13 Q. So what is National Bureau of Economic
14 Research?

15 A. It is an association of economists.
16 There are centers like this all around the world.

17 Q. Is this a think tank? an academic group?
18 a social gathering? How would you describe this
19 association of -- of economists?

20 MR. OPPENHEIMER: Objection

21 to form.

22 A. It's a group of economists. I think
23 that's the best way to describe it.

24 Q. Does it have clients?

25 A. Not that I'm aware.

1 Q. Okay. Is it a foundation? Like does it
2 receive contributions to funds its work?

3 MR. OPPENHEIMER: Objection
4 to form.

5 A. You know, I have not even looked into
6 the funding of the NBER and I wouldn't know for
7 sure.

8 Q. Is it a for-profit business?

9 A. It's not a for-profit business.

10 Q. Does it do expert consulting the way
11 some other consulting groups do?

12 MR. OPPENHEIMER: Objection
13 to form.

14 A. Does the NBER do expert consulting?
15 I -- I couldn't say for sure.

16 Q. At the time you were there, did it do
17 expert consulting?

18 A. I wasn't aware that it did at the time I
19 was there.

20 Q. Okay. And, again, I'm not saying it
21 does. I'm just trying to figure out whether NBER
22 is a for-profit, for-client --

23 A. Uh-huh.

24 Q. -- research organization.

25 All right. So this is a paper by David

1 Yermack.

2 Are you familiar with Professor Yermack?

3 A. I have occasionally read some of his
4 material, but I couldn't place exactly what he
5 says.

6 Q. If you turn over one page --

7 THE REPORTER: But I
8 couldn't place his?

9 THE WITNESS: Exactly what
10 he has to say.

11 Q. Okay. If you turn over one page to
12 where the article begins, it shows that he -- that
13 David Yermack is in the Department of Finance at
14 the New York University Stern School of Business.

15 Do you see that?

16 A. I do.

17 Q. Okay. Are you familiar with the Stern
18 School of Business at NYU?

19 A. Yes.

20 Q. Okay. Have you ever had occasion to see
21 this article before I put it in front of you
22 today?

23 A. I have not read it currently.

24 Q. Sorry. Let me clarify.

25 So my question is: Have you seen it

1 before?

2 A. I can't say for sure.

3 Q. Okay. So the title is "Is Bitcoin a
4 Real Currency?" The date, as I said, was in
5 December of 2013. It's not a lengthy article, but
6 you can feel free, if you need to, to flip to
7 different parts of it. But I want to ask you
8 questions about page 2. So I'd like to direct
9 your attention there.

10 MR. OPPENHEIMER: You should
11 read as much of the paper as you need
12 to in order to be able to answer the
13 question.

14 MR. MOYE: So are you
15 directing her to read it now?

16 MR. OPPENHEIMER: No, I'm --
17 I'm instructing her that --

18 THE WITNESS: I'm choosing
19 to read it.

20 MR. OPPENHEIMER: -- to the
21 extent she needs to read it in order
22 to answer your questions, she is able
23 to do so.

24 MR. MOYE: That's fine.

25 A. So because you wanted me to go to page

1 2, I'm reading what comes just right before.

2 Q. Sure. That's fine.

3 (Pause)

4 A. I was able to see what Mr. Yermack has
5 to say on page 2.

6 Q. Okay. I'm going to ask you a couple of
7 questions about the final paragraph on page 2, so
8 I'm glad you had a chance to -- to look at that.

9 Okay. In the middle of the final
10 paragraph on page 2, Mr. Yermack makes this -- or
11 Professor Yermack makes the following statement:
12 "However, I argue in the sections below that
13 bitcoin performs poorly as a unit of account and
14 as a store of value."

15 Do you see that?

16 A. I see that.

17 Q. Did I read that, hopefully, very
18 correctly?

19 A. You did.

20 Q. Okay. Do you agree with that statement
21 by Professor Yermack?

22 MR. OPPENHEIMER: Objection
23 to form.

24 A. I haven't read the substance of what --
25 and he says "in the sections below," but, anyhow,

1 so I haven't read it, so I couldn't say one way or
2 the other.

3 Q. Okay. So just to clarify, you can't say
4 whether you agree with it, is that right?

5 MR. OPPENHEIMER: Objection
6 to form.

7 You can answer.

8 A. I can't say without reading his analysis
9 and thinking about it independently.

10 Q. Okay. So that's a two-part answer. I
11 get that.

12 Would the same thing be true about
13 whether you disagree with it? You could not say
14 whether you disagree with it without studying it
15 further and thinking on your own?

16 MR. OPPENHEIMER: Objection
17 to form.

18 You can answer.

19 A. That's correct.

20 Q. Okay.

21 A. That follows logically.

22 Q. Okay. So what if I changed the wording
23 of that sentence that I read you slightly. What
24 if, hypothetically, Professor Yermack or someone
25 else had said that XRP performs poorly as a unit

1 of account and as a store of value? As you sit
2 here today, would you be in a position without
3 further review or study to either agree or
4 disagree with that statement?

5 MR. OPPENHEIMER: Objection
6 to form.

7 You can answer.

8 A. My opinion is about whether it functions
9 as a store of value and a unit of account. So I
10 don't have an opinion as to whether it performs,
11 you know, qualitatively one way or the other. I
12 just highlight that it does perform those
13 functions.

14 Q. Okay. So that's -- I think that's an
15 important qualification, understanding of your
16 opinions. So thank you for making that.

17 You're not saying that XRP performs well
18 as a unit of account or a store of value, correct?

19 MR. OPPENHEIMER: Objection
20 to the form.

21 You can answer.

22 A. I do not quant -- I do not provide any
23 qualification in that sense, whether it performs
24 well or poorly. I do not. I simply state that it
25 does.

1 Q. Okay. Now, another sentence I'd like to
2 ask you about is the final sentence in this
3 paragraph. It says "Therefore, bitcoin's value is
4 almost completely untethered to that of other
5 currencies, which makes its risk nearly impossible
6 to hedge for businesses and customers and renders
7 it more or less useless as a tool for risk
8 management."

9 Did I read that correctly, I hope?

10 A. I see that statement.

11 Q. Okay. Do you have any basis to either
12 agree or disagree with Professor Yermack's
13 statement about bitcoin?

14 MR. OPPENHEIMER: Objection

15 to the form.

16 A. I'm thinking about -- yeah, I don't want
17 to take you down arcane academic paths, okay? So
18 I -- I certainly don't have an opinion about this
19 one way or the other. It's not my purpose, in my
20 opinion, to assess whether risk management is
21 involved with XRP one way or the other.

22 Q. Okay. So I think you anticipated my
23 next question.

24 So I'm going to ask you, if,
25 hypothetically, Professor Yermack or someone else

1 had said that XRP's value was almost completely
2 untethered to that of other currencies, and then
3 finishes the same sentence like Professor Yermack
4 did, would you be in a position to agree or
5 disagree with that statement without further study
6 and analysis?

7 MR. OPPENHEIMER: Objection

8 to the form.

9 A. My opinion does not address -- does
10 not -- I was not asked to address that question in
11 my opinion. I was asked to address whether it
12 performs the function of money. So since I was
13 not asked to address whether it performs -- and --
14 and, as you know, the consensus of economists is
15 not that money needs to be a tool for risk
16 management.

17 Q. Okay. Do you understand -- do you have
18 an understanding of the -- of the term "time
19 series volatility"?

20 MR. OPPENHEIMER: Objection

21 to form.

22 A. I do understand that term.

23 Q. What does that term mean to you?

24 A. It -- time series is a -- is something
25 that changes over time. And the volatility is the

1 extent to which it changes over time.

2 Q. So if something exhibits a high time
3 series volatility, would it be correct to say it
4 shows significant volatility over time?

5 MR. OPPENHEIMER: Objection
6 to form.

7 You can answer.

8 A. There's no definition here for
9 "significant."

10 Q. Okay. He says "very high time series
11 volatility."

12 What do you understand that to mean?

13 MR. OPPENHEIMER: Objection
14 to form.

15 A. There's no benchmark. Where are we
16 exactly, by the way?

17 Q. So we're still on page 2.

18 A. Okay.

19 Q. But I'll refer you to a figure in -- in
20 a minute.

21 A. Uh-huh. And his high -- he says --
22 there. "High time series volatility."

23 You know, we don't have any specifics
24 here and -- so what was your question again?

25 Q. My question was: What does that

1 statement mean to you?

2 MR. OPPENHEIMER: Objection
3 to form. I think asked and answered.

4 But you can answer.

5 A. So he seems to have a benchmark in mind
6 for high versus low, but it's not here so I
7 couldn't tell you what his benchmark is. And he's
8 talking about the extent to which something
9 changes over time. That's time series volatility.

10 Q. Okay. Let's go to page 7, a section
11 that begins "Bitcoin's weaknesses as a
12 currency..." And there's two paragraphs and the
13 second paragraph continues from the bottom of page
14 7 to the top of page 8. I'm happy to let you look
15 at those because I have a couple of questions
16 about these paragraphs.

17 (Pause)

18 Q. Figure 3 is on page 13.

19 A. Thank you.

20 So I've read the two paragraphs.

21 Q. Okay. So I'd like to direct your
22 attention to the last sentence in the first -- in
23 the paragraph in the middle of page 7 where
24 Professor Yermack says "Bitcoin imposes large
25 risks on its owners, because it has excessive

1 volatility and fails to exhibit correlation with
2 the behavior of other currencies."

3 Do you see that?

4 A. I see that.

5 Q. Okay. As you sit here today, are you in
6 a position to either agree or disagree with that
7 statement without further study and consideration?

8 A. I would --

9 MR. OPPENHEIMER: Objection.

10 You can answer.

11 THE WITNESS: Okay.

12 A. There's a lot of terms in here that are
13 not defined. And in terms of the implied
14 definition of risk, which is -- so there's two --
15 it's a very complicated sentence. There's an
16 awful lot going on in here. But I couldn't agree
17 with it in part because some of the terms are not
18 defined.

19 Q. Okay. For the same reason are you
20 unable to disagree with it because you don't know
21 what he meant and you haven't considered it?

22 MR. OPPENHEIMER: Objection.

23 You can answer.

24 Q. There's going to be an objection. You
25 may as well wait for it.

1 A. It's impossible to respond to the
2 sentence one way or the other because terms are
3 not reasonably defined.

4 Q. That's what I'm getting at. Without
5 knowing what he studied and what he meant, you
6 can't say he's right, but you also can't say he's
7 wrong. Is that fair?

8 MR. OPPENHEIMER: Objection
9 to the form.

10 A. That's correct, you can't. When -- when
11 the statement is not really meaningful, you can't
12 say one way or the other.

13 Q. All right. So hypothetically, if
14 Professor Yermack or someone else said the same
15 thing about XRP, that XRP imposes large risks on
16 its owners because it has excessive volatility and
17 failed to exhibit correlation with the behavior of
18 other currencies, without additional study or
19 knowing more about the definition of those terms,
20 are you in a position to agree with that
21 statement?

22 MR. OPPENHEIMER: Objection
23 to form.

24 A. So the fact is that XRP is used as a
25 store of value, as I said earlier. So the

1 volatility, whatever it is, is not considered
2 excessive by the people that hold it.

3 Q. How do you know what the holders of XRP
4 think or don't think about volatility?

5 A. They're willing to hold it.

6 Q. Do you know whether they're comfortable
7 with volatility?

8 A. That's irrelevant.

9 MR. OPPENHEIMER: Objection
10 to form.

11 THE WITNESS: Oopsy.

12 A. That's irrelevant.

13 Q. Do you know whether they have
14 opportunities to sell?

15 A. That's not relevant.

16 Q. You assume they do?

17 A. That's not relevant.

18 Q. Okay. As you sit here today, are you
19 able to disagree with a statement that "like
20 bitcoin, XRP imposes large risks on its owners
21 because it has excessive volatility and fails to
22 exhibit correlation with the behavior of other
23 currencies"?

24 MR. OPPENHEIMER: Objection
25 to form.

1 A. Here's something I could agree to.
2 Dollars impose large risks on their owners because
3 they have volatility. I could agree to that.

4 Q. You could agree to that.

5 All right. Let's look at Figure 3.
6 It's on page 13. So I understand that you did
7 not create this table and that should be --
8 that's baked into your answer.

9 My question is hypothetical. Assuming
10 that the data that Professor Yermack relies upon
11 is correct and that he has accurately portrayed it
12 here in Figure 3 showing the volatility of bitcoin
13 compared to other major currencies, do you agree
14 with Professor Yermack that bitcoin is more
15 volatile than gold, British pound, Japanese yen
16 and euro and the other currencies here?

17 MR. OPPENHEIMER: Objection
18 to the form.

19 Q. Am I reading that correctly?

20 A. That is what the figure indicates.

21 Q. Okay. And as you sit here today, do you
22 have any reason to think that he's wrong about his
23 calculation or what it shows?

24 MR. OPPENHEIMER: Objection.

25 A. I'd like to highlight that these

1 volatilities are calculated for the period January
2 1, 2013 to November 29th, 2013. So it's important
3 to ask whether these would still be true today.

4 Q. Okay. But as far as the data in 2013,
5 do you have any reason to -- do you have any
6 reason to dispute that the data or his conclusions
7 are incorrect?

8 MR. OPPENHEIMER: Objection
9 to form.

10 A. I see the chart and I see that it's
11 there.

12 Q. Okay. So now we're moving into another
13 hypothetical, but I want you to continue looking
14 at that chart if it's helpful to you.

15 Do you understand how to create a
16 volatility comparison the way Professor Yermack
17 appears to have done? In other words, could you
18 do that yourself for various currencies?

19 A. When --

20 MR. OPPENHEIMER: Objection
21 to form.

22 A. According to what's listed in the table
23 description, I could do that.

24 Q. Okay. And from time to time in your
25 professional career, have you done that? Have you

1 examined volatility of various currencies?

2 A. Yes.

3 Q. Okay. So do you have any understanding
4 as to how XRP's volatility as a currency compares
5 to other currencies?

6 A. I do. In my rebuttal to Mr. [REDACTED] I
7 have numbers. And I -- the XRP volatility from
8 his source, an article that he sourced, the
9 appropriate number -- there -- there were numbers
10 at different horizons. And I took the number for
11 the one-minute horizon and then I compared that to
12 some data I happened to have for euro/dollar. And
13 the comparison was XRP volatility at the
14 one-minute horizon was .1 percent; and volatility
15 of the dollar, the euro/dollar exchange rate, was
16 point -- was one -- 20 percent as large.

17 Q. Why did you choose the one-minute
18 horizon for that comparison? Why not a longer
19 period of time?

20 MR. OPPENHEIMER: Objection.

21 You can answer.

22 A. I chose the one-minute horizon because
23 on the ODL platform, the ideal time horizon would
24 be about five seconds, which is how long anyone
25 holds XRP for one of those transactions and one

1 minute was the -- the closest I could get to that
2 five-second time horizon.

3 Q. Now, is it your testimony today that no
4 one holds XRP for longer than one minute?

5 A. No.

6 Q. Okay. Fair enough.

7 I think I've exhausted my questions
8 about Figure 3 and this article. If you don't
9 have anything to add to your prior answers, we
10 can put this aside.

11 We've looked at one article comparing --
12 studying whether one cryptocurrency, bitcoin, is
13 money or can function as money.

14 THE REPORTER: I can't hear
15 you. Is what?

16 MR. MOYE: Is money or can
17 function as money.

18 Q. Are you aware of any other articles --
19 and I think you said that you had seen the Yermack
20 article that you looked at at least one time in
21 the past.

22 A. To clarify --

23 MR. OPPENHEIMER: Objection.

24 THE WITNESS: I'm sorry.

25 MR. OPPENHEIMER: Mischarac-

1 terizes.

2 You can answer.

3 A. Yeah. I did not say I have seen it. I
4 said I may have seen it among the other articles
5 that cross my path.

6 Q. Okay. Thank you for that clarification.

7 Are you aware of other articles by
8 academics discussing or analyzing whether
9 cryptocurrencies function as money or currency?

10 A. I couldn't name them.

11 Q. Okay. So this is about, as best you can
12 recall, when you -- when you saw or learned of
13 these articles.

14 Were you aware of these articles before
15 you wrote your report?

16 A. I -- there's a premise here that I
17 haven't supported.

18 Q. Then I -- I misunderstood and I
19 apologize. I thought you said you were aware that
20 there were articles by academics discussing or
21 analyzing whether cryptocurrencies function as
22 money.

23 A. I -- I have been aware that they exist,
24 but I have not pursued them.

25 Q. Okay. That's the basis for my question:

1 Your awareness of their existence.

2 Were you aware of their existence before
3 you wrote your initial report?

4 A. To be honest, I don't remember when I
5 first became aware that such papers were in
6 existence. I'm aware that there's a lot of
7 literature on cryptos and exactly when I
8 learned -- saw the -- a paper on the subject, I
9 couldn't tell you.

10 Q. Okay. Can we assume, then -- well, let
11 me put it this way.

12 Would you agree with me that your
13 paper -- your opinion doesn't cite any other
14 academic papers analyzing cryptocurrencies and
15 whether they function as money? Would you agree
16 with me on that?

17 A. That's correct.

18 Q. Okay. Is there a reason why there's no
19 discussion or literature review in your opinion
20 about what other economists had thought about
21 whether cryptocurrencies function as money?

22 MR. OPPENHEIMER: Objection
23 to form.

24 A. Again, restate your question.

25 Q. I'll try. It's probably a very bad

1 question.

2 Why didn't you look in preparing your
3 report and cite something? Why wasn't it of
4 interest to you whether other academics had looked
5 at a similar question to the one that you were
6 looking at in preparing your report?

7 MR. OPPENHEIMER: Objection
8 to form.

9 A. I don't know.

10 Q. So let me take that one step further.
11 You've been very clear, and I appreciate that,
12 that your statements about the properties and
13 functions for currency, you're attempting to
14 convey a consensus among other economists,
15 especially academics, is that correct?

16 A. I attempted to convey a consensus about
17 the functions of currency and, in addition, the
18 attributes that are helpful in a currency, yes.

19 Q. Okay. So my question is: Can you tell
20 us why you might not have -- why you were not
21 interested in knowing whether there was a
22 consensus among academics or economists about
23 whether cryptocurrencies have the same functions
24 of money or currency?

25 MR. OPPENHEIMER: Objection

1 to the form.

2 A. I don't know how to put this. I was
3 asked whether XRP fulfills the functions of money
4 and I know what those are and I addressed those
5 questions. And knowing what the functions are and
6 knowing the properties of XRP, which are facts, I
7 could connect the dots. And so I did not find the
8 need for anything. And, to be honest, at this
9 point -- well, "to be honest" is an inappropriate
10 way to put it.

11 Let's be clear. At this point,
12 cryptocurrencies are new enough that there is
13 extremely unlikely to be a consensus of anything.
14 It takes a very long time for a broad consensus to
15 develop.

16 Q. Okay. Thank you. You can put that --
17 you've already put Exhibit 3 aside.

18 Let's go back to your report. So I want
19 to go to the section where you discuss Ripple's
20 ODL product. So I'd like you to go to page 13 and
21 paragraph 29.

22 Beginning in paragraph 29, you de -- you
23 define the Global Payments Initiative as GPI.

24 Do you see that?

25 A. I do, yes.

1 Q. And then the next sentence you say
2 "However, GPI remains slow relative to Ripple's
3 ODL system because transfers through GPI still
4 involve chains of correspondent banks."

5 Do you see that?

6 A. I do.

7 Q. What's the source of your comparison?

8 A. I -- the specific source. I believe I
9 learned about how GPI works through the SWIFT
10 website and that allows me to understand how it
11 works and draw comparisons.

12 Q. The SWIFT website defines the Global
13 Payments Initiative, correct?

14 A. Yes.

15 Q. Okay. So in this -- in this sentence we
16 read, you are comparing the speed of GPI to
17 Ripple's ODL system.

18 Did the -- did the website, the SWIFT
19 website you looked at, did that analyze the speed
20 of ODL?

21 MR. OPPENHEIMER: Objection
22 to form.

23 A. Why would it?

24 Q. Well, you cite here on number 42, that
25 appears to be a source for your statement "GPI

1 remains slow relative to Ripple's ODL system."

2 So I'm asking you whether this source
3 that you cite actually compared Ripple's ODL
4 system to other transfers on GPI.

5 MR. OPPENHEIMER: Objection.

6 You can answer.

7 A. I -- you know, I don't recall
8 specifically that detail about that article.

9 Q. Okay. Do you think it's possible that
10 you are citing the SWIFT -- the article about the
11 SWIFT transaction banking system, whether that's
12 the source for your information about SWIFT, but
13 you have drawn the conclusion that Ripple is
14 slow -- that GPI is slow relative to -- to ODL?

15 MR. OPPENHEIMER: Objection
16 to form.

17 Q. In other words, how do you know that
18 Ripple's ODL system is faster than the GPI system?

19 A. Because I know that the GPI system works
20 through corresponding banking networks.

21 Q. Okay. So that's the SWIFT side.
22 How do you know how fast ODL is?

23 A. I know that the transactions on ODL
24 happen in about five seconds and that, in general,
25 with electronic transfers, they can be done far

1 faster than can ever be hoped for on the SWIFT
2 network.

3 Q. Okay. Let me be clear about this
4 because this may help us in other questions going
5 forward.

6 Is the source for your information about
7 the speed and other properties of ODL --

8 A. Uh-huh.

9 Q. -- is it Ripple or is it some other
10 party not associated with Ripple?

11 MR. OPPENHEIMER: Objection
12 to the form.

13 A. I have highlighted here my sources, and
14 beyond that, since it's been a few months since I
15 compiled it -- my sources are listed here.

16 Q. All right. Have you ever tested an ODL
17 transaction to see how fast it goes?

18 A. I think we've -- I've explained that I
19 have not.

20 Q. Okay. How do you know --

21 A. In any case, I couldn't -- right.

22 Q. Okay. So how do you know how fast an
23 ODL transaction happens? Didn't you learn that
24 from your association with Ripple or its counsel?

25 MR. OPPENHEIMER: Objection

1 to form.

2 A. I'm sorry. I can't speak to what I've
3 learned from counsel --

4 Q. Okay.

5 A. -- because that's attorney privilege.

6 But beyond that, there's no reason to
7 believe that I got that from Ripple here. I have
8 sources. I have used my intelligence. And that's
9 all that was -- I have non-Ripple sources here.
10 There's my own intelligence and that's sufficient.

11 Q. Okay. So where in your report do you
12 indicate how quickly an ODL transaction happens?

13 A. I -- the -- the five seconds is
14 indicated -- I can't remember where. I -- I don't
15 remember the paragraph, but the five seconds is --
16 is in there somewhere.

17 Q. Well, I'm not saying you're wrong, but
18 that's kind of an important element of your
19 report.

20 A. Okay. So --

21 Q. Can you -- can we take a moment and try
22 to find it?

23 A. Sure. Here we go. Here we go. Here we
24 go.

25 (Pause)

1 A. Yes. Here we go.

2 Q. Okay. What page are you looking at?

3 A. Let's see. What do I say? Well, I
4 say -- in paragraph 54, I say "The XRP ledger's
5 verification protocol requires just a few seconds,
6 less than 1/10th of a minute of the 10 minutes
7 required by proof of work."

8 In my rebuttal to [REDACTED] I specify the
9 average of five seconds, though I should say that
10 when I looked up the numbers a couple days ago,
11 the time was down to four seconds.

12 Q. All right. So thank you for clarifying.

13 So would it be fair to say that your
14 source for your description of ODL speed in
15 paragraph 29 is most likely the same as your
16 source in paragraph 54?

17 MR. OPPENHEIMER: Objection
18 to the form; mischaracterizes.

19 A. In paragraph -- I'm sorry, say that
20 again.

21 Q. Yeah.

22 A. Paragraph?

23 Q. Your first -- your first comment on ODL
24 speed that I noticed was in paragraph 29.

25 A. 29. There we go. That's the one.

1 Okay. Let's take a look.

2 So it would be fair to say I was taking
3 the five seconds reported as the average
4 transaction time by Ripple, which, of course, can
5 be verified because all these transactions are
6 recorded and one can watch them happen online.

7 So that I was taking the five seconds
8 reported by Ripple in that source and comparing it
9 to the multiple days required or the -- the slow
10 process for correspondent banking chains reported
11 in there.

12 Q. Okay. Thank you for clarifying that.

13 And the source for paragraph 54 is
14 Footnote 78, correct? It's XRP's ledger overview.

15 A. Let's be clear. The source I cited for
16 one sentence in paragraph 54 is the ledger
17 overview, which, as I just mentioned, can be
18 verified in -- online in -- you can just watch the
19 transactions happen and there are online verifiers
20 of these things.

21 Q. And have you done that, Professor Osler?

22 A. I did not do it at the time. I took the
23 Ripple report of five seconds as a fact knowing
24 that it was on a ledger that could be verified.

25 Q. You had high confidence, is that fair?

1 MR. OPPENHEIMER: Objection

2 to form.

3 THE REPORTER: I'm sorry,

4 you had what?

5 Q. You had high confidence that what was on
6 the Ripple website was accurate?

7 A. I had --

8 MR. OPPENHEIMER: Objection

9 to form.

10 A. I recognized that anything about speeds
11 would be in -- directly comparable to information
12 readily available on the web on a daily and, in
13 fact, intraday basis so that Ripple was unlikely
14 to -- no one would be likely to misstate those
15 numbers.

16 Q. Why don't we look at paragraph 39 on
17 pages 16 and 17.

18 A. It's a long day.

19 Q. I know. It is a long day, so let me
20 know if you need a break. It's not an endurance
21 test.

22 A. Thank you. I can go on for a little
23 longer, for sure.

24 Q. Okay. I don't need you to read it out
25 loud, but could you summarize the points you're

1 trying to make in paragraph 39 as it relates to

2 Ripple -- I'm sorry, as it relates to XRP?

3 MR. OPPENHEIMER: Objection

4 to form.

5 A. Oh, so let me -- let's start. I'll read

6 paragraph 39 and then you can ask me the question.

7 Okay?

8 Q. Fair enough.

9 (Pause)

10 A. Okay. Go -- go right ahead.

11 Q. Okay. Could you help me understand?

12 What is the point you're trying to make in

13 paragraph 39?

14 A. It's a bridge paragraph between the

15 concepts before and the concepts after. I

16 remember that from constructing it. Let me

17 identify the concepts before. Right.

18 Right. So the paragraphs before were

19 highlighting the obstacles for progress in

20 reducing the cost of remittances through

21 traditional payments pro -- channels and

22 especially banking channels and clarifying that

23 they're unlikely to go away soon.

24 But then I was turning to places where

25 there has been progress. So this is a bridge

1 paragraph between one and the other.

2 Q. All right. So paragraph 29 refers to a
3 figure you created -- well, you either created or
4 obtained from another source -- the average cost
5 of remittances between 13 of the G20 countries?

6 A. This is --

7 MR. OPPENHEIMER: Objection.

8 You can answer.

9 THE WITNESS: I'm sorry.

10 A. The figure is taken from a World Bank
11 report in March of 2021.

12 Q. Okay. Just showing the average cost
13 of -- the average cost of remittances in various
14 countries, correct?

15 A. That's correct.

16 Q. Okay. My question for you, Professor
17 Osler, is, does this figure have anything to do
18 with XRP? In other words, were any of these
19 countries using XRP in a -- in a way that would
20 have shown up in any of these graphs during the
21 time period shown in this -- in this figure?

22 MR. OPPENHEIMER: Objection
23 to form.

24 A. So your question had two parts: One,
25 does it have anything to do with XRP and then you

1 specified a way in which it might have something
2 to do with XRP.

3 So there was a message from the chart
4 related to XRP, but it has nothing to do with what
5 you were trying to impute would have been the
6 message.

7 Q. Tell me the message from the chart then.

8 A. The message is that costs are exorb --
9 very high around the world; that, as I've
10 highlighted, reducing the cost of remittances is a
11 world goal because -- world goal because poor
12 people worldwide are losing -- in 2020 it was 35
13 billion, I believe, out of their total remittance
14 payments of 540 million to low- and middle-income
15 countries and that's because, as I report, the
16 average cost is 6.7 percent.

17 So these costs are high and that is the
18 point of this -- this chart, to highlight that the
19 costs are very high and need to come down and to
20 set the stage for discussing Ripple.

21 Q. Okay. You said these costs are high by
22 country and these are average costs, correct?

23 A. (No verbal response.)

24 Q. So does this chart show anything about
25 whether a particular consumer in a particular

1 country has access to lower-cost money remittance
2 services or is this a conglomerate of a much
3 larger set of data?

4 MR. OPPENHEIMER: Objection;
5 very compound.

6 A. Yes. Yeah. Why don't you pick that
7 apart.

8 Q. Is XRP being used in any of these
9 countries during the time that the -- shown by the
10 figure?

11 MR. OPPENHEIMER: Objection
12 to form.

13 A. I believe it was being used in Jap -- it
14 may or may not have been. I couldn't say with
15 absolute certainty and I -- yeah. I couldn't say
16 with absolute certainty.

17 Q. Okay. So assuming it was being used in
18 at least one of these countries, Japan, during the
19 times shown, did use of -- the use of ODL,
20 Ripple's product ODL, did it have any effect,
21 either positive or negative, in the average cost
22 of remittances for that country?

23 MR. OPPENHEIMER: Objection
24 to form.

25 Q. In other words, was it significant?

1 MR. OPPENHEIMER: Objection

2 to form.

3 A. So I -- I couldn't say --

4 Q. Okay.

5 A. -- based on the information available to
6 me.

7 Q. Okay. Let's look at paragraph 42.

8 What's your understanding of the period
9 of time that Ripple's ODL product was commercially
10 available?

11 A. It was -- I believe it was formally
12 introduced in 2019.

13 THE REPORTER: 2018?

14 THE WITNESS: '19.

15 THE REPORTER: Thank you.

16 Q. Did Ripple have a money transfer product
17 which used XRP prior to 2019?

18 A. It had a product called xRipple or
19 something like that, or xRemit. I -- it had a --
20 a name previously and I do -- yeah, it -- there
21 was a product with a name prior to the name "ODL."

22 Q. Are you familiar with the term "xRapid?"

23 A. Yes, that sounds familiar.

24 Q. What is xRapid?

25 A. It -- I couldn't tell you exactly

1 because my real focus has been on ODL. It was the
2 predecessor product to ODL.

3 Q. And was that available commercially
4 before 2019?

5 A. To my knowledge, it was.

6 Q. And did that have any effect, positive
7 or negative, in the average exchange rates --
8 average remittance -- I'm sorry, let me get the
9 right term -- the average cost of remittances in
10 any of the countries shown in your report?

11 MR. OPPENHEIMER: Objection
12 to form.

13 A. So I think it's important to keep in
14 mind the broad context of my opinion. My opinion
15 is that Ripple has a product that is disruptive to
16 traditional technologies and needs -- and that it
17 has a -- a very familiar challenge to economists,
18 which is that it needs to create a network, but
19 without -- the network is what will attract more
20 customers.

21 So I have clarified that Ripple is at
22 the early stages of an attempt to get past these
23 things and is using traditional strategies
24 recommended by economists.

25 So -- so your question does not seem

1 responsive to my report.

2 Q. Exactly. I'm testing your assertion
3 that Ripple's in the very -- very early stages.

4 If, hypothetically, Ripple had a
5 product, whether called ODL or xRapid, that was
6 commercially available prior to 2019, would that
7 have been an important fact to consider in your
8 analysis and -- and opinion that ODL is well
9 suited to meet the needs of money transmitters
10 around the world?

11 MR. OPPENHEIMER: Objection
12 to the form.

13 A. No, because Ripple was a different
14 product -- I mean xRapid was a different product.

15 Q. How did it differ from ODL?

16 A. I don't -- you know, I -- this is
17 something where I don't know the specifics, but
18 there's a specific about ODL that I do know that's
19 important, that ODL provides guaranteed rates and
20 that that was specific to ODL.

21 Q. How does -- how does ODL provide
22 guaranteed rates?

23 A. The mechanism, it's patented and secret.

24 Q. What can you tell us about it? I mean,
25 we have a confidentiality order in this case.

1 What -- what's the secret sauce that Ripple does
2 for ODL?

3 MR. OPPENHEIMER: Objection
4 to form.

5 A. I don't mean it's secret in the sense
6 that I can't give it away. It's secret in the
7 sense that I don't have it.

8 Q. You don't have it. Okay.

9 Let's look at paragraph 44.

10 MR. OPPENHEIMER: Rob, we
11 don't have to do it now, but if we
12 could take a break soon, that would
13 be great.

14 MR. MOYE: Good idea. Very
15 soon.

16 Q. In the middle of paragraph 44, you state
17 "Customers licensing ODL from Ripple use XRP to
18 make cross-border transactions and cross-currency
19 payments 'in as little as three seconds.'" And
20 then there's a citation at paragraph -- I'm sorry,
21 at Footnote 68 to a Ripple website.

22 Do you see that?

23 A. I do.

24 Q. Okay. Am I correct that this was your
25 source for that statement that ODL allowed for

1 payments in as little as three seconds?

2 A. Yes.

3 MR. MOYE: Okay. We can
4 take a break now.

5 THE WITNESS: Okay.

6 THE VIDEOGRAPHER: Okay.

7 Going off the record at 2:27.

8 (Whereupon, a recess is taken.)

9 THE VIDEOGRAPHER: Okay.

10 Back on the record at 2:46.

11 BY MR. MOYE:

12 Q. Okay. Professor Osler, I'd like to
13 direct your attention to paragraph 44 of your
14 initial report. The part that starts at the
15 bottom of 18 and continues over to the top of page
16 19.

17 You introduce a new topic and you say
18 "For the reasons explained below, the ODL system
19 is superior to existing cross-border payment
20 systems and is therefore a viable competitor."

21 THE REPORTER: Excuse me.

22 Could you slow down? The ODL system

23 --

24 Q. -- "is superior to existing cross-border
25 payment systems and therefore a viable

1 competitor."

2 And then you introduce a number of
3 things that you say ODL does better than the
4 competition.

5 Do you see that? You say it's faster;
6 it's more transparent; it's less costly.

7 Did I read that right?

8 A. Correct. Faster, more transparent.

9 Q. Okay. We've talked a little bit about
10 how you came to an understanding of ODL speed.
11 I'd like to ask you now how you came to an
12 understanding that ODL was less costly than
13 existing payment systems.

14 What can you tell me?

15 MR. OPPENHEIMER: Objection
16 to form.

17 A. Oh, beyond my report?

18 Q. No. I'd like you to tell me what you
19 say in your report about how it compares to cost.
20 Like where in your report do you compare the cost
21 of ODL to existing payment systems?

22 A. I do not provide an explicit comparison.

23 Q. Okay. So I see in paragraph 54 in your
24 discussion of the speed of the XRP ledger, you do
25 compare the cost of an XRP transaction to a

1 bitcoin transaction.

2 Do you see that?

3 A. Uh-huh.

4 MR. OPPENHEIMER: Objection.

5 Q. Is there any place in your report where
6 you show or describe a comparison between the cost
7 of an ODL transaction and the cost of another
8 cross-border payment transaction?

9 A. There is no explicit comparison.

10 Q. So what was your understanding about
11 that comparison? How did you know that ODL was
12 less costly than the other systems?

13 A. I -- I was basing it on the World Bank
14 report and the -- the high cost of those and the
15 fact that ledger transactions are so inexpensive.

16 Q. Were you comparing apples to apples?

17 MR. OPPENHEIMER: Objection.

18 Q. There are no -- do you think -- you
19 thought you knew the cost of the traditional bank
20 payment systems and you had some information about
21 ODL and what it did or could do.

22 How did you know what it would cost the
23 consumer?

24 MR. OPPENHEIMER: Objection

25 to form.

1 A. So let's see how I can phrase this. All
2 right. So the -- the -- so the 10.7 percent cost
3 for -- all right. I was basing it on the
4 extremely low cost of the actual transaction and
5 the fact that if you reduce the cost of the actual
6 transaction within and eliminate, say, the -- the
7 chain of correspondent banks and the very high
8 costs associated with transaction fees at
9 correspondent banks, if you -- and similar
10 qualifications for Western Union that you reduce
11 this one cost, that becomes less costly.

12 Q. So your prior chart we looked at
13 comparing the cost of transactions among --
14 remit -- remittances among various countries,
15 those are average costs, correct?

16 A. Those are average costs.

17 Q. And within each country, some are going
18 to be -- some sources are going to be high and
19 some sources are going to be lower, correct?

20 A. Correct.

21 Q. Okay. So when you say that ODL -- let
22 me find your words. When you say it's "superior
23 to existing cross-border payment systems and
24 therefore a viable competitor," are you saying
25 it's better than the average or are you saying

1 it's better than the -- than all of the existing
2 payment systems?

3 MR. OPPENHEIMER: Objection
4 to form.

5 A. I -- let's see. I had in mind that it
6 was better than the average and very much better
7 than some of the individuals.

8 Q. Did you think it was better than Western
9 Union?

10 A. Yes.

11 Q. Did you think it was better than
12 MoneyGram?

13 A. I think it -- I wasn't thinking
14 specifically about individual -- Western Union is
15 a very big name. I wasn't thinking about
16 MoneyGram. I was thinking that it's far less
17 costly than the banking systems and less costly
18 than the post office, which is at 8 percent.

19 Q. So how did you know what exactly it
20 cost? Like, what was your -- what was your
21 understanding of what a -- an ODL transaction
22 would cost the consumer?

23 MR. OPPENHEIMER: Objection
24 to form.

25 A. I -- so my understanding was based on

1 some of the facts I provided, which is that it is
2 a -- a dir -- it's a digital transfer and I was
3 basing it on the cost of digital transfers.

4 Q. Did you know anything about what the
5 cost to a consumer would be when you wrote this
6 report?

7 MR. OPPENHEIMER: Objection
8 to the form.

9 Q. I should say, did you know anything more
10 specific about what the cost to a consumer would
11 be for using ODL when you wrote this report?

12 MR. OPPENHEIMER: Objection
13 to form.

14 A. The cost would vary according to the
15 remittance service providers.

16 Q. Well, when you say that ODL would be
17 lower, what did you think someone might have to
18 pay to send \$200 overseas?

19 A. Remember, one here -- one concept here
20 is absolute and one concept is relative. Lower
21 does not presume a specific number, which would be
22 absolute.

23 Q. Did you have a -- a number in mind?

24 A. I was highlighting that the efficiency
25 of the ODL process and the speed and the

1 transparency of it reduced the overall costs of
2 the remittances and it reduces it and the -- so I
3 was not pinpointing a number.

4 Q. Okay. In your chart of the average cost
5 of remittances, are those costs to the consumer,
6 the person who's sending money, or are they costs
7 to someone else, like the institution?

8 A. These costs are the joint costs to
9 sender and receiver for remittances of the
10 standard amount looked at in the literature, which
11 is \$200 or the equivalent.

12 Q. In an ODL transaction, who pays the cost
13 of using XRP?

14 MR. OPPENHEIMER: Objection.

15 A. The cost to use XRP, the -- the specific
16 fee, is, oh, something like one-thousandth of a
17 cent in U.S. -- as measured in U.S. dollars or
18 it's technically -- it's measured in XRP and it's
19 one-thousandths of 1 percent of an XRP or possibly
20 smaller.

21 And that cost -- I couldn't tell you for
22 sure. It's -- there's going to be transactions
23 between the remittance service providers and
24 Ripple, the market maker. And whether the cost is
25 paid by the service providers or Ripple, I -- I do

1 not know.

2 Q. Can we agree that the consumers don't
3 buy the XRP in the ODL transaction?

4 A. That is correct.

5 MR. OPPENHEIMER: Objection.

6 Q. They're not the customers for purposes
7 of the cost of XRP, is that right?

8 MR. OPPENHEIMER: Objection.

9 A. So we'd have to be very careful about
10 the definition. Ripple refers to its clients as
11 the XRP -- as the ODL -- institutions that use
12 ODL.

13 Q. And those institutions are the ones that
14 purchase the XRP, correct, not the consumer?

15 MR. OPPENHEIMER: Objection.

16 A. The -- the institutions -- you know,
17 ownership of cryptocurrency is very complicated
18 and I couldn't tell you the legalities of who
19 technically owns what, when, in there and so I --
20 I couldn't tell you.

21 Q. Okay. So let's take a step back from
22 buying and selling XRP, look at the transaction as
23 a whole, the money moving through the ODL system.

24 A. Right.

25 Q. Aren't there other costs involved to the

1 transmitters and -- and the recipient?

2 A. There's a lot of costs in remittances.
3 There's time. There's uncertainty. There can
4 be -- there can -- there are -- in the usual
5 foreign exchange wholesale market, there are
6 bid/ask spreads. The nature of ODL is uncertain,
7 so I couldn't say that. One thing I can say is
8 that ODL does -- has this patent about a feature
9 of the product that eliminates slippage, which
10 is -- comes up a lot in SEC discussions.

11 Q. Aren't there costs on exchanges --

12 MR. OPPENHEIMER: Objection.

13 Q. -- associated with ODL transactions?

14 MR. OPPENHEIMER: Objection
15 to form.

16 Q. Don't you have to pay exchanges to get
17 money in one currency or to sell money in another
18 currency?

19 MR. OPPENHEIMER: Objection.

20 A. I referred to that already in the figure
21 of point -- oh, I've forgotten how many zeroes,
22 but it's something like one one-thousandths of a
23 percent or possib -- it's probably smaller.
24 Perhaps 100-thousandths of a percent of XRP that
25 is paid in the process for an XRP transaction.

1 Q. Right. For the use of the XRP.

2 But what are the costs to acquire the
3 currency that's actually being exchanged? ODL's
4 the bridge. But someone still needs to purchase
5 the currency to make it available to the other
6 person, right?

7 MR. OPPENHEIMER: Objection

8 to form.

9 A. I think I've been clear that there is a
10 cost to a transaction in XRP and that is this very
11 tiny, tiny fraction of an XRP.

12 Q. All right. So it's your testimony that
13 the only cost associated with a service provider
14 using ODL would be the tiny, tiny cost of XRP, is
15 that right?

16 MR. OPPENHEIMER: Objection;

17 mischaracterizes testimony.

18 A. Exactly. I have not said that it's the
19 only. I have said that that is the transaction
20 cost that I'm aware of in terms of a fee for
21 making a transaction.

22 Q. Do you understand that there are fees
23 associated with a foreign currency exchange that
24 still has to happen as part of the remittance
25 process?

1 A. I --

2 MR. OPPENHEIMER: Objection.

3 THE WITNESS: Oh, I'm sorry.

4 MR. OPPENHEIMER: You can

5 answer.

6 A. I understand that. I've been very
7 careful here because I am not aware that ODL
8 char -- charges -- ODL has a specific kind of
9 product and I am not aware that they charge any
10 additional fees for transactions.

11 Q. Okay. So let's be clear about that.

12 Are you aware of any other costs to
13 using ODL other than the XRP fee that you've
14 already described?

15 MR. OPPENHEIMER: Objection

16 to form.

17 A. I've mentioned with -- with any
18 transaction, there are costs of waiting, though in
19 this case, those costs are very small and --
20 well...

21 So let's say in terms of specific fees?

22 No, I'm not aware of any others.

23 (Whereupon, exhibit is received

24 and marked SEC Osler Deposition

25 Exhibit 10 for identification.)

1 BY MR. MOYE:

2 Q. Let's take a look at what's been marked
3 as Exhibit 10.

4 Are you familiar with Exhibit 10?

5 A. I may have seen it but I don't remember
6 seeing it.

7 Q. Exhibit 10 is Ripple publication
8 entitled "Free Working Capital with On-Demand
9 Liquidity." It is referred to at -- on page 18 of
10 your report at Footnote 68.

11 A. Okay. So I did see it.

12 Q. Is this one of your sources for
13 understanding how the ODL transaction system
14 works?

15 MR. OPPENHEIMER: Objection.

16 A. It is something I looked at.

17 Q. Something you cited, right? Does that
18 mean you relied on it?

19 A. I'll take your word for it.

20 MR. OPPENHEIMER: Objection.

21 Q. Please look at paragraph 44, Footnote
22 68.

23 A. All right. Let me just see.
24 Forty-four.

25 Yes. There you go.

1 Q. Okay. So on the third page of Exhibit
2 10, there's a diagram that says "How On-Demand
3 Liquidity Works."

4 Do you see that?

5 A. I do.

6 Q. And in that first sentence, it talks
7 about bridging "two currencies in as little as
8 three seconds..."

9 Do you see that?

10 A. Yes.

11 Q. Is that the same quote you used in
12 paragraph 44?

13 A. I would guess so.

14 Q. Okay. Can you tell me if there's
15 anything in Exhibit 10 that talks about the costs
16 of an On-Demand Liquidity transaction?

17 MR. OPPENHEIMER: Counselor,
18 there appears to be a video that's
19 part of the pages not included here.

20 Do you have a copy of that?

21 MR. MOYE: I'm not -- I
22 don't have a copy and can't play it.

23 MR. OPPENHEIMER: Okay.

24 MR. MOYE: So -- but if you
25 tell me it's a video, I will --

1 MR. OPPENHEIMER: And I'm

2 just --

3 MR. MOYE: I'm not going to

4 agree.

5 MR. OPPENHEIMER: -- looking

6 at the top of the -- one, two,

7 three -- fourth page and I see the --

8 the video play box.

9 MR. MOYE: The 1 -- the

10 1:46?

11 MR. OPPENHEIMER: Yeah.

12 MR. MOYE: Okay.

13 BY MR. MOYE:

14 Q. So if you turn the page over from "How
15 On-Demand Liquidity Works" to "Why Use XRP?"

16 A. Uh-huh.

17 Q. I don't see a video play bar, but I do
18 see the statement "XRP is ideally suited for
19 global payments because it is quicker, less
20 costly, more scalable and sustainable."

21 Do you see that?

22 A. And it compares to the digital assets.

23 Q. All right. But is this your source for
24 your understanding that use of ODL is less costly
25 than any other digital asset?

1 MR. OPPENHEIMER: Objection

2 to the form.

3 A. Let me remind you that I have described
4 the very, very low transaction fees for XRP and
5 I've also described how it is faster than other
6 digital currencies include -- and certainly faster
7 than bank transfers, Western Union, and post
8 office transfers.

9 And -- and the -- so -- right. So I've
10 highlighted the costs -- some of the costs in
11 question that I considered.

12 Q. All right. Well, I'm trying to find in
13 your report anything different than we've already
14 discussed about the cost of an ODL transaction and
15 I'm not seeing a description of the costs to
16 the -- either the ultimate consumer or the service
17 provider, but I'm happy to be corrected about
18 that.

19 Do you believe in your initial report
20 there was any discussion of the ODL process and
21 the cost associated with any or each part of it?

22 MR. OPPENHEIMER: Objection

23 to the form.

24 A. As I had said earlier, I never put out a
25 specific cost number because I was talking about

1 comparative costs.

2 Q. Okay. So in your understanding of an
3 ODL transaction, is it your understanding that ODL
4 transactions involve the exchange of XRP into
5 another currency?

6 MR. OPPENHEIMER: Objection
7 to form.

8 A. I lost track at the beginning.

9 Q. Yeah.

10 Is it your understanding that in an ODL
11 transaction, there's an exchange of XRP on
12 another -- into another currency?

13 MR. OPPENHEIMER: Objection.

14 A. I would say yes.

15 Q. Where does that exchange take place?

16 MR. OPPENHEIMER: Objection
17 to form.

18 A. That's really not possible to answer.

19 Q. Does it take place on an exchange
20 somewhere?

21 MR. OPPENHEIMER: Objection
22 to form.

23 A. The ODL?

24 Q. As part of the ODL transaction, you take
25 pesos, you get XRP, you exchange the XRP for yen.

1 Let's say that.

2 Someone has to -- you have to buy
3 that -- someone is buying that yen, correct?
4 Where do they get that yen?

5 MR. OPPENHEIMER: Objection
6 to form.

7 You can answer.

8 A. All right. So the -- so the ODL
9 platform -- on the ODL platform, Ripple is the
10 market maker. Ripple sources the foreign
11 currencies and -- and trades in and out of XRP
12 versus foreign currencies either from its own
13 balance sheet or by going to the many crypto
14 exchanges where XRP is exchanged -- exchanged for
15 currencies.

16 Q. So are you aware that there -- wouldn't
17 there be fees for using an exchange to exchange
18 XRP for another currency?

19 MR. OPPENHEIMER: Objection.

20 You can answer.

21 A. This is a hypothetical. In general,
22 there are fees to trade on exchanges.

23 Q. In your report, do you anywhere take
24 that into account in evaluating the cost of using
25 ODL either to the consumer or to the service

1 provider?

2 A. For this kind of purpose, those fees are
3 generally so very, very small that for this kind
4 of purpose, they're usually not an important part
5 of the overall cost.

6 Q. Okay. What's your basis for your
7 understanding that the fees of the exchange of XRP
8 for a real currency, a fiat currency, is very,
9 very small?

10 MR. OPPENHEIMER: Objection
11 to form.

12 A. That statement is quite broad. I've
13 been discussing specifically exchange fees.

14 THE REPORTER: Exchange?

15 THE WITNESS: Exchange fees.

16 Q. Yeah.

17 What is the basis for -- for your
18 understanding that the exchange fees, when XRP is
19 exchanged for a fiat currency, are very small?

20 MR. OPPENHEIMER: Objection
21 to form.

22 Q. How do you know that?

23 A. I am aware of exchange fees on -- I
24 study the trading process, so I am aware of
25 exchange fees in many contexts.

1 Q. Yeah. So I'm focusing on the context
2 where you say you have no personal experience.
3 The XRP exchange for --

4 A. Uh-huh.

5 Q. -- some sort of -- pesos are exchanged
6 for XRP and then the XRP is exchanged for yen or
7 some Australian dollars or something else.

8 On those two exchange transactions, do
9 you agree with me that there are likely to be fees
10 associated with those transactions?

11 A. I haven't --

12 MR. OPPENHEIMER: Objection
13 to form.

14 You can answer.

15 THE WITNESS: Whoops.

16 A. I have agreed that there are likely to
17 be fees. I have also asserted that those fees are
18 likely to be small.

19 Q. Okay. So what I'm asking you is: How
20 do you know what the fees for using XRP to
21 purchase fiat currency are if you have no personal
22 experience with that?

23 A. Again, as I highlighted, it's my
24 experience studying markets as a whole that I
25 bring to bear here. And in many years of studying

1 how markets function, the cost of exchange fees
2 have consistently been ignored to be perfectly
3 honest. They are so small.

4 Q. All right. I'm going to look at another
5 document. I want to think about whether I need to
6 come back to this or move on, but let me show you
7 Exhibit 11.

8 (Whereupon, exhibit is received
9 and marked SEC Osler Deposition Exhibit
10 11 for identification.)

11 THE WITNESS: Here you go.

12 THE REPORTER: Thank you.

13 BY MR. MOYE:

14 Q. Exhibit 11 is a printout with the title
15 "The Environmental Impact: Cryptocurrency Mining
16 versus Consensus."

17 Do you see that?

18 A. Yes, I do.

19 Q. The author is David Schwartz?

20 A. Yes.

21 Q. And do you recognize David Schwartz as a
22 Ripple employee?

23 A. I do.

24 Q. Okay. So you cite Exhibit 11 on page 22
25 of your report at Footnote 80.

1 A. All right.

2 Q. Do you see that?

3 A. Yes, I do.

4 Q. Okay. And you cite this article for the
5 proposition that "The XRP Ledger requires less
6 than .002 percent of the computing power required
7 for proof-of-work."

8 Do you see that?

9 A. I do.

10 Q. Where in this -- are you able to tell me
11 where in Exhibit 11 you obtained that information?

12 A. There's a problem at the top of the
13 third page of my exhibit where there's a lot of --
14 there's some stuff that's overwritten that's
15 important to me.

16 Q. All right. So I apologize for the print
17 job, but this is how we were able to find it.

18 Do you know what's under there and
19 whether that's what you were referring to?

20 A. I -- okay. I think I can help you out.
21 I think if you take -- yes, I see it. If you take
22 1/57,000. So it says here that XRP is 57,000
23 times more efficient to get the reverse, what
24 fraction of the bitcoin power does it take to do
25 an XRP transaction, which is the way I expressed

1 it. You take 1/57,000 and that should give you a
2 number very close to .002.

3 Q. Okay. So thank you for explaining how
4 you derived that number.

5 Is it fair to say that your source for
6 the computing power or the efficiency of XRP as
7 compared to bitcoin comes directly from Ripple?

8 MR. OPPENHEIMER: Objection
9 to form.

10 You can answer.

11 A. My source for the fact that -- that
12 number comes from this document. My understanding
13 of the relatively tiny resource requirements of a
14 transaction on the Ripple Ledger compared to the
15 bitcoin ledger comes from my understanding of the
16 consensus mechanisms involved in both ledgers.

17 The bitcoin process for achieving
18 consensus requires substantial computer work
19 and -- by -- by structure. It requires
20 substantial computer work and that will not go
21 down as computing power increases. That will
22 remain a big challenge for the -- it will require
23 a lot of computer work to verify a bitcoin
24 transaction no matter what because it's called
25 proof of work so the work is a requirement.

1 The -- Ripple -- the XRP consensus
2 requirement is simply a -- a voting algorithm.
3 That's it. It's so -- it -- the fraction has to
4 be very -- the fraction of resources used has to
5 be very, very tiny relative to bitcoin.

6 Q. And how did you come to learn what was
7 involved in this consensus mechanism that you
8 described and how bitcoin works in the blockchain
9 and -- and Ripple? Is that something you knew
10 before you started this case?

11 A. I knew some of it, yes.

12 Q. Okay.

13 A. I did not know about the XRP in
14 particular, but I learned that from the XRP white
15 paper. The -- the -- a white paper written by
16 Ripple experts on what they were doing.

17 Q. Okay. Do you consider yourself an
18 expert in blockchain technology?

19 A. No.

20 Q. Do you consider yourself an expert in
21 how bitcoin operates?

22 A. I have learned sufficient to make
23 reasoned conclusions on something like this.

24 Q. Okay. So same question about XRP. Do
25 you consider yourself an expert in how the XRP

1 transactions work on the XRP Ledger?

2 MR. OPPENHEIMER: Objection

3 to form.

4 A. I consider myself having learned plenty

5 to make this resource comparison.

6 Q. Do you consider yourself having -- do

7 you believe you have expertise in how the XRP

8 Ledger functions?

9 MR. OPPENHEIMER: Objection

10 to form.

11 A. I have knowledge.

12 Q. My question was about expertise.

13 A. I have generated as much knowledge as

14 required to understand that blockchain

15 transactions will inherently require a lot of work

16 because of the nature of the consensus mechanism,

17 which is to require a lot of work, and that the

18 XRP ledger will not require a lot of work simply

19 because it's a few electronic signals from here to

20 there that constitute voting.

21 Q. In terms of expertise, do you believe

22 you have more or better -- a -- a greater or

23 better understanding than people who have read the

24 same sources that you have?

25 MR. OPPENHEIMER: Objection

1 to form.

2 A. I couldn't compare.

3 Q. It might be better but it might not be
4 as good. Is that fair?

5 MR. OPPENHEIMER: Objection.

6 Q. If you can't make a comparison?

7 MR. OPPENHEIMER: Objection.

8 A. You know, this is -- I -- I'm not sure I
9 see much meaning in this question. I'm sorry.
10 You know, if someone else read Dickens, would they
11 understand it better than me? They might, they
12 might not.

13 Q. Same would be true of the XRP material?
14 They might, they might not?

15 A. They might, they might not.

16 Q. Okay. Fair enough.

17 (Whereupon, exhibit is received
18 and marked SEC Osler Deposition Exhibit 5
19 for identification.)

20 THE WITNESS: Here you go,
21 Bridget.

22 BY MR. MOYE:

23 Q. Professor Osler, please take a look at
24 what's been marked for identification as Exhibit
25 Number 5.

1 MR. OPPENHEIMER: I'd just
2 note for the record the version of
3 Exhibit 5 we've been given appears to
4 start on what's listed as page 2, not
5 page 1.

6 MR. MOYE: Correct. It does
7 not have the Exhibit A cover sheet
8 which was filed with the Court.

9 BY MR. MOYE:

10 Q. Please tell me if you recognize what's
11 been marked as Exhibit Number 5? And you can page
12 through it if that will help you.

13 A. I do not recognize it.

14 Q. Okay. Why don't you flip to the last
15 page.

16 A. The signature page?

17 Q. Sure, the signature page.

18 So this is signed by someone named
19 Lawrence Angelilli on, it looks like, March 14th
20 of 2021. And if you go back to the first page of
21 this declaration, Mr. Angelilli identifies himself
22 as the executive vice president and chief
23 financial officer of MoneyGram International.

24 Okay. So with that introduction, and
25 you may look at it more if it would help you or

1 not, do you believe you've ever seen Exhibit 5
2 before?

3 A. I have not seen Exhibit 5.

4 Q. Okay. Have you heard that MoneyGram,
5 which once had a relationship with Ripple using
6 the ODL project, stopped or withdrew from that
7 relationship and the -- and the two companies no
8 longer have a commercial relationship?

9 MR. OPPENHEIMER: Objection

10 to form.

11 Q. I need a yes or no, not a nod.

12 A. What is the -- so the question is do --
13 have I heard that?

14 Q. Yes. Have you heard that?

15 A. Yes, I have heard that.

16 Q. Okay. Where did you hear that?

17 A. I don't remember.

18 Q. Okay. Just to review what you said
19 before, I don't believe -- according to your prior
20 testimony, I don't believe you've read any
21 depositions in this case, is that correct?

22 A. That's correct.

23 Q. So you're -- you would not have read
24 Mr. Angelilli's deposition in this case, is that
25 right?

1 A. Correct.

2 Q. Okay. You said you haven't read
3 documents regarding this litigation other than
4 those cited -- documents specific to this
5 litigation other than those cited in -- in your
6 report, is that right?

7 A. That's correct.

8 Q. So you wouldn't have read any agreements
9 between MGI, MoneyGram, and Ripple?

10 A. That's correct.

11 Q. Okay. And it sounds like you have not
12 seen or had the opportunity to read
13 Mr. Angelilli's declaration before?

14 MR. OPPENHEIMER: Objection;
15 asked and answered.

16 You can answer again.

17 A. I have not seen or read this before.

18 Q. All right. Could you please take a look
19 on page 11, paragraph 40. Take a chance -- take a
20 moment to read that to yourself.

21 (Pause)

22 Q. Have you had a chance to read paragraph
23 40?

24 A. I have.

25 Q. Okay. So a few caveats. Some of the

1 terms in here are technical. I don't expect you
2 to know necessarily what MXN is or MPSI, although
3 I believe MXN refers to Mexican pesos.

4 A. It does.

5 Q. And obviously if you've never seen this
6 before, you wouldn't know what Mr. Angelilli's
7 testimony was about various fees or costs. My
8 question is related, though.

9 At any time during the -- your expert
10 engagement, did you learn from Ripple's counsel or
11 from any other source that in MoneyGram's
12 experience using ODL, there were a variety of
13 fees, significant fees, associated with
14 MoneyGram's use of ODL?

15 MR. OPPENHEIMER: Hang on a
16 second.

17 Counsel, do you think you could
18 rephrase that one to avoid asking whether
19 she learned it from counsel and just ask
20 whether she learned it or not?

21 MR. MOYE: I'll ask two
22 questions because both are important
23 to me.

24 BY MR. MOYE:

25 Q. So the first question: In your expert

1 engagement, did you learn at any point that
2 MoneyGram incurred a variety of fees which turned
3 out to be significant for using the ODL product in
4 its money transfer business?

5 A. I did not.

6 Q. Okay. Did you ever discuss that
7 topic -- I'm not asking specific conversations
8 back and forth. I'm asking a topic.

9 Did you ever discuss that topic with
10 counsel that retained you and helped you with your
11 report?

12 MR. OPPENHEIMER: Objection.

13 I instruct you not to answer
14 that.

15 Q. Will you follow that instruction?

16 A. Yes.

17 Q. Okay. So let's move to paragraph 42.

18 If you could read that to yourself for a moment
19 and let me know when you've had a chance to do so.

20 (Pause)

21 Q. Ready?

22 A. Uh-huh.

23 Q. Okay. At any point in this litigation,
24 did you ever learn that Ripple was paying
25 substantial subsidies to MoneyGram in order to

1 effectuate that commercial relationship so that
2 MoneyGram would use ODL in its money transfer
3 business?

4 MR. OPPENHEIMER: Objection
5 to form.

6 You can answer.

7 A. I -- I learned at some point that Ripple
8 had been subsidizing MoneyGram.

9 Q. Did you learn that before or after you
10 issued your initial report?

11 A. I -- I believe I -- I -- I knew it when
12 I composed the report and that's -- yes.

13 Q. Okay. In discussing whether XRP -- or,
14 I'm sorry, the ODL product is well-positioned to
15 serve as a disruptive technology in -- in a
16 competitive money transfer business, why did you
17 not think it was important to acknowledge
18 MoneyGram's prior experience with Ripple and ODL,
19 including the -- the fees it had to pay and the
20 subsidies it received?

21 MR. OPPENHEIMER: Objection
22 to form.

23 A. I'd like to highlight I have answered
24 already that I was not aware of these fees. What
25 I was confident in is that subsidies are part of

1 the normal strategy that a firm in Ripple's --
2 with a product like Ripple's ODL needs to take
3 according to common wisdom among economists.

4 Q. Okay.

5 A. Ripple --

6 Q. I'm sorry. I want to let you finish.

7 MR. MOYE: But could you
8 read back -- after she's done, could
9 you read back her answer for the
10 sentence she just finished?

11 Q. Go ahead.

12 A. So Ripple is -- subsidies are a normal
13 part of the recommended strategy or -- I don't
14 know how do I put this. That among economists,
15 disruptive innovation is a known strategy and the
16 challenges associated with products that require
17 networks are also widely known. And it is
18 understood that in firms that need to establish a
19 network, subsidies are a normal part of the
20 initial process of getting a foothold in the
21 market. Yes.

22 MR. MOYE: Could you read
23 back from where I indicated the first
24 part of her answer?

25 (Whereupon, the record was read

1 back.)

2 BY MR. MOYE:

3 Q. Did you understand that the subsidies
4 from Ripple to MoneyGram were meant to reduce the
5 cost borne by MoneyGram in using ODL in
6 transactions?

7 MR. OPPENHEIMER: Objection
8 to form.

9 A. I would say that what you just described
10 is the definition of a subsidy in this context.

11 Q. So whether or not that's true, I'm
12 asking about your awareness.

13 Did you know that the purpose of the
14 subsidy was to make MoneyGram whole for costs, for
15 additional costs that it bore, in using ODL in its
16 money transfer business?

17 MR. OPPENHEIMER: Objection
18 to form.

19 A. I knew that -- so let's be clear what I
20 knew. What I knew and understood was that Ripple
21 had paid subsidies to MoneyGram. Money is
22 fungible, so the exact nature of what it was
23 intended to compensate for, I -- I was not -- I
24 did not probe.

25 Q. Okay. Any -- is there anywhere in your

1 report where you indicate that Ripple was paying
2 subsidies to MoneyGram or any other user of ODL as
3 part of its technology?

4 A. I did not point it out, but I believe
5 the report was explicit that subsidies are common.

6 Q. Let's look at that.

7 A. I say -- in the discussion of network
8 externalities --

9 Q. I'm sorry, where are you?

10 A. So I would be -- paragraph 69, somewhere
11 in that vicinity, is where I talk about network
12 externalities.

13 So I highlight the 50 million that
14 Ripple -- and I phrase it as used "to seed a
15 partnership with MoneyGram." I was aware that
16 that was intended as a subsidy.

17 Q. Wasn't that an equity investment?

18 A. I think it took that form. Yes, that
19 was the form it took.

20 Q. How did you -- how did you learn about
21 that? I don't see any source cited here.

22 A. It's true. I didn't provide a source.

23 Q. You also mention "with this agreement in
24 hand."

25 So you were aware there was an

1 agreement?

2 MR. OPPENHEIMER: Objection

3 to form.

4 Q. Am I correct that you were aware there
5 was an agreement?

6 A. Yes, I was a -- I was aware there was an
7 agreement.

8 Q. Did you ask for or review -- did you ask
9 for a copy of that agreement in preparing this
10 report?

11 A. No.

12 Q. Why not?

13 A. I read about it and that was enough.

14 Q. Where did you read about it?

15 A. In the media somewhere, and this is a
16 place where I seem to have overlooked providing
17 a -- a source.

18 Q. Okay. So in looking for the media to
19 describe this agreement, did you also see media
20 describing the dissolution of the MoneyGram and
21 Ripple relationship?

22 MR. OPPENHEIMER: Objection

23 to form.

24 A. I was -- the exact source I couldn't
25 pinpoint as you can tell. I was aware that that

1 agreement had dissolved.

2 Q. What was your understanding of why
3 agreement had dissolved?

4 A. I couldn't tell you on the spot.

5 Q. Did you think it dissolved because it
6 was too profitable?

7 MR. OPPENHEIMER: Objection.

8 Q. Too successful?

9 MR. OPPENHEIMER: Objection
10 to form.

11 A. I -- look, I didn't probe exactly what
12 happened there. I knew it didn't work out.

13 Q. Did you assume that it didn't work out
14 for reasons that had nothing to do with the
15 viability of ODL?

16 MR. OPPENHEIMER: Objection
17 to form.

18 A. As I have said, I did not probe the
19 reasons why it did not work out and I will clarify
20 why not. ODL has a disruptive, innovative,
21 impotent product, and it's going to take -- it is
22 very challenging for such products to get a
23 foothold in the market. And the idea that it will
24 all happen at once and every step will work out
25 beautifully would be unrealistic.

1 So for all I knew -- so I couldn't
2 identify the reasons that it did not work out. I
3 had not seen these documents and I did not probe.

4 Q. Okay. Let me go back to the
5 announcements about the MoneyGram/Ripple
6 relationship.

7 As you indicated, the published reports
8 talked about a \$50 million equity investment that
9 Ripple made in MoneyGram. Assume for the purposes
10 of my question to you that the other subsidies
11 that Ripple was paying to MoneyGram were not
12 publicly disclosed in the media, in media sources.
13 Okay?

14 So, in other words, my question is: Did
15 you really learn -- did you learn about other
16 subsidies on -- online or did you learn about --
17 or did you never learn about any other subsidies
18 other than the \$50 million?

19 MR. OPPENHEIMER: Objection
20 to the form.

21 Q. All right. That was a terrible
22 question. Let me try again.

23 Did you learn about any other subsidies
24 besides the \$50 million in preparing this report?

25 MR. OPPENHEIMER: Objection

1 to the form.

2 A. At -- at some point over the last --
3 what are we? -- four months, five months, I
4 learned there had been some additional subsidies.
5 I don't remember precisely when I learned it.

6 Q. Okay. So besides the \$50 million, do
7 you think there's any other place in the -- in
8 your report that you discuss these other
9 subsidies -- these other subsidies to MoneyGram?

10 MR. OPPENHEIMER: Objection.

11 A. I was providing examples of Ripple's key
12 strategic moves and this served as an example and
13 that was sufficient for my purpose at that point.

14 Q. Were you deliberately trying to
15 undersell the level of subsidy or did you not
16 think it was important?

17 MR. OPPENHEIMER: Objection
18 to form.

19 A. There was -- let's be clear. I was
20 providing an example.

21 Q. Okay. So I guess my question would be
22 different if the only subsidy you knew about was
23 the \$50 million. But since I'm not clear from
24 your answers whether you knew about those other
25 subsidies when you wrote your report, I'm trying

1 to understand why you chose only -- why you may
2 have chosen only to emphasize the 50 million. You
3 said it was an example. So I'm probing to find
4 out.

5 Did you think there would have been
6 anything wrong in indicating that there were other
7 subsidies on top of that?

8 MR. OPPENHEIMER: Objection

9 to the form.

10 Q. Would that have been inconsistent with
11 your report?

12 MR. OPPENHEIMER: Same

13 objection.

14 A. I'd like to highlight that an important
15 part of a clear document is conciseness and my
16 choices very often have to do with being concise.

17 Q. Fair enough.

18 In -- in reaching your conclusion that O
19 -- that Ripple and its ODL product are
20 well-positioned to be a disruptive technology and
21 be successful in the money transfer business, did
22 you consider whether Ripple had competitors in
23 this business and whether they were also using
24 blockchain technology to compete in this space?

25 A. I am aware that Ripple had a couple --

1 has a few competitors and I listed two of them and
2 so I'm aware of it.

3 Q. What kind of cryptocurrency do they use
4 in the space? Do you know?

5 A. No, I don't.

6 MR. OPPENHEIMER: Objection
7 to form.

8 A. Yeah.

9 Q. Are you familiar with the --

10 A. Perhaps you could clarify what you mean
11 by "kind of cryptocurrency."

12 Q. Sure. Are you familiar with the term
13 "stablecoins"?

14 A. Yes, I am.

15 Q. What is a stablecoin?

16 A. A stablecoin is -- it's a cryptocurrency
17 whose value in terms of a base currency is fixed
18 and it's maintained that way by just changing the
19 supplier's needs.

20 Q. Generally, how does that -- how do the
21 features of a stablecoin differ from XRP?

22 MR. OPPENHEIMER: Objection
23 to form.

24 A. With respect to that particular feature?

25 Q. Yes.

1 A. With respect to the particular feature,
2 so with a stablecoin, the price is fixed and the
3 quantity varies. With XRP -- and the quantity
4 varies according to market conditions as needed to
5 keep the value fixed.

6 With XRP, the amount of XRP in existence
7 is stable moment to moment. There's no need to
8 keep the price fixed. And -- I want to be careful
9 how I say this.

10 So it's -- it's stable in the moment and
11 it is -- when it changes, it is not just due to
12 volatility in the price of XRP.

13 Q. With respect to the money transfer
14 business, which you -- which you've been
15 analyzing, and ODL's potential to act as a
16 disruptive technology, do you have any opinion
17 about whether use of a stablecoin would provide
18 one of Ripple's competitors with any sort of
19 advantages in competing for customers?

20 MR. OPPENHEIMER: Objection
21 to form.

22 A. I have not considered this opinion,
23 this -- this question and I'd have to think about
24 it.

25 Q. So at the time you wrote your report,

1 that's not something that you had considered,
2 right?

3 A. I -- that's correct.

4 Q. Just trying to clarify. Thank you.

5 (Whereupon, exhibit is received
6 and marked SEC Osler Deposition Exhibit
7 12 for identification.)

8 (Whereupon, exhibit is received
9 and marked SEC Osler Deposition Exhibit
10 13 for identification.)

11 BY MR. MOYE:

12 Q. I'm going to hand you two exhibits.

13 First is Exhibit 12.

14 THE WITNESS: Here you go.

15 Q. The second is Exhibit 13.

16 A. Thank you.

17 Q. They're short so if it would help you,
18 you could read both of those before I ask you any
19 questions.

20 (Pause)

21 A. Yeah.

22 Q. Okay. Let's start with Exhibit 12.

23 Exhibit 12 is from CoinDesk. It's a publication

24 entitled "Mexican Crypto Exchange [REDACTED]"

25 Incorporates Circle Solutions for Cross-Border

1 Payments Initiative."

2 Do you see that?

3 A. Yes, I do.

4 Q. I'd like you to go on the next page,
5 halfway down, there's a paragraph that begins "By
6 incorporating the payments solutions of Circle,
7 the payment services company that operates the USD
8 coin (USDC) stablecoin, the initiative will allow
9 users to make deposits and withdrawals via
10 domestic wire transfers and execute payments in
11 the U.S. or Mexico."

12 And at the bottom of the page, it
13 indicates that using an app, "while in-app
14 exchanges between US dollar-backed stablecoins and
15 Mexican pesos will be processed in seconds,
16 according to" Bitco -- "[REDACTED]"

17 So assume for the purpose of the
18 following question that the [REDACTED] money services
19 system is now partnering with Circle to use a
20 stablecoin cryptocurrency and it has an app that
21 allows payments between U.S. and Mexico to
22 function in seconds.

23 Based on those assumptions, do you have
24 reason to believe -- do you have any reason to
25 believe that Ripple's competitors might prefer to

1 use a stablecoin as a cryptocurrency to allow
2 money transfers to happen between U.S. and Mexico?

3 MR. OPPENHEIMER: Objection

4 to the form.

5 A. I'd like to highlight that the products
6 here are different. So what Circle is providing
7 here is conversion from a fiat into USDC or from
8 USDC back. They're not focusing on remittance
9 channels where the conversion is from one fiat
10 currency to another.

11 Q. Well, for purposes of my question, I've
12 asked you to assume that the exchanges between
13 U.S. dollars and Mexican pesos is a similar money
14 transfer to what we've been describing with --
15 with Ripple.

16 Do you understand how money could be
17 transferred from U.S. dollars through the use of
18 stablecoin to Mexican pesos using this technology?

19 MR. OPPENHEIMER: Objection

20 to the form.

21 You can answer.

22 A. It's -- you're kind of asking me -- let
23 me clarify here.

24 We have two very different products.
25 One allows conversion from a fiat currency to a

1 cryptocurrency or vice versa and that's it. It's
2 not set up to make transfers from one fiat
3 currency to another fiat currency via a
4 cryptocurrency. So that's one product.

5 The other product is intended to convert
6 one fiat currency to another fiat currency using a
7 cryptocurrency as a medium of exchange in between.

8 These are two very different products.
9 And your question says, well, what if the Circle
10 product were actually the same as the XRP product?
11 Then what would you think?

12 Well, the Circle product is not the same
13 as XRP, so it -- I can't answer that question.

14 Q. All right. Thanks for that
15 clarification.

16 Do you believe that this transfer
17 mechanism as described in this article, using the
18 U.S. dollar stablecoin, suggests that Ripple's
19 competitors would prefer the use of a stablecoin
20 over XRP?

21 MR. OPPENHEIMER: Objection
22 to form.

23 A. It doesn't suggest any such thing.

24 Q. Okay. You can put that aside.

25 MR. OPPENHEIMER: Before we

1 move on from that, I just want to
2 note for the record it appears
3 there's missing text at the top of
4 both the second and possibly third
5 page of this exhibit.

6 MR. MOYE: That is very
7 possible, and if so, it was
8 inadvertent. So thank you for
9 pointing that out.

10 BY MR. MOYE:

11 Q. Let's look at Exhibit 13.

12 Exhibit 13 describes a new partnership
13 MoneyGram has with Stellar to use a USD coin, a
14 stablecoin governed by Coinbase.

15 And, again, in the third paragraph on
16 the second page, it -- this article indicates
17 "Customers will be able to convert cash into and
18 out of USDC for instant pickup at MoneyGram
19 locations."

20 Is there anything about this article
21 that suggests that -- suggests to you that
22 MoneyGram prefers the use of a stablecoin
23 cryptocurrency for its money transfer business
24 rather than continued use of XRP?

25 MR. OPPENHEIMER: Objection

1 to form.

2 A. So I'd like to note there's a -- and I'd
3 like to clarify why. The -- the reasons that
4 MoneyGram claimed XRP didn't work in the previous
5 exhibit you sent to me had to do with fees. Those
6 fees will still apply, and so -- or one would
7 assume those fees would still apply.

8 So the -- the fact that they have moved
9 to another cryptocurrency undermines their
10 original claim that that's the reason they wanted
11 to get out of the XRP, the arrangement with
12 Ripple.

13 Q. Do you have anything else?

14 A. That's all I have to say. There's no
15 consistency here.

16 Q. Okay.

17 A. So one cannot infer anything.

18 Q. All right. You can put that aside then.

19 MR. MOYE: Want to take
20 another short break?

21 THE VIDEOGRAPHER: Okay.
22 Going off the record at 3:53.

23 (Whereupon, a recess is taken.)

24 THE VIDEOGRAPHER: Back on
25 the record at 4:12.

1 BY MR. MOYE:

2 Q. Dr. Osler, I'd like you to -- I'd like
3 to hand you what's been marked as Exhibit 6.

4 A. Thank you.

5 (Whereupon, exhibit is received
6 and marked SEC Osler Deposition Exhibit 6
7 for identification.)

8 BY MR. MOYE:

9 Q. For the record, Exhibit 6 is the
10 rebuttal report of [REDACTED] dated November
11 12, 2021.

12 Are you familiar with Exhibit 6?

13 A. Yes.

14 Q. How did you become familiar with Exhibit
15 6?

16 A. It was sent to me by counsel.

17 Q. Okay. And after receipt by counsel,
18 what did you do in terms of reviewing Exhibit --
19 or studying Exhibit 6?

20 A. I reviewed it and studied it.

21 Q. Okay. I'm going to word this question
22 carefully.

23 Were you asked by counsel to form or
24 prepare any opinions in response to Exhibit 6?

25 MR. OPPENHEIMER: Objection

1 to the form.

2 Hang on a second.

3 I think I have to instruct you
4 not to answer that.

5 MR. MOYE: So this is a
6 chance, if she's prepared today to
7 talk about this report, we might be
8 able to go into it. But if she's not
9 been asked as her --

10 MR. OPPENHEIMER: Counsel,
11 you are free --

12 MR. MOYE: -- part of her
13 engagement --

14 MR. OPPENHEIMER: -- you are
15 free to ask her about the report and
16 whether she has formed any opinions
17 on it in connection with her
18 engagement. I think what you -- what
19 I would not allow her to answer is
20 whether she was -- what instructions
21 she received from counsel.

22 BY MR. MOYE:

23 Q. All right. So let's try this. These
24 may be yes-or-no questions.

25 Have you formed any opinions after

1 reading this report?

2 MR. OPPENHEIMER: You can
3 answer.

4 A. Let me think about this. I'm thinking
5 about the definition of an opinion. I have formal
6 opinions here.

7 Q. Correct.

8 A. I certainly have not formed any formal
9 opinions. I have thought about the positions
10 articulated here.

11 Q. Okay. And that's what I'm trying to get
12 at.

13 Is there something formal that you're
14 prepared to say today on the record about these
15 opinions? And there's no rebuttal to rebuttal in
16 this case, but I'm just wanting not just -- not
17 just a response, but whether, as part of your
18 engagement, you were authorized to form, create,
19 or prepare opinions in response to that.

20 MR. OPPENHEIMER: Objection
21 to the form.

22 You can answer if you
23 understand.

24 Counsel, you can just ask her
25 about the report as well, but go ahead.

1 A. I'd be happy to give you a lecture on
2 the mistakes in this.

3 Q. No, I really am here to ask -- talk to
4 you about your opinions, which you've already
5 given, so your initial and your rebuttal.

6 So I just want to know if you prepared
7 anything formal in response in this rebuttal.

8 A. Nothing formal.

9 Q. Okay.

10 (Whereupon, exhibit is received
11 and marked SEC Osler Deposition Exhibit 7
12 for identification.)

13 BY MR. MOYE:

14 Q. Please take a moment to take a look at
15 what's been marked as Exhibit 7, which is the
16 amended expert rebuttal report of Patrick E.
17 ██████████.

18 A. Amended?

19 Q. Yeah. It's dated four days after the
20 initial report and I believe there was correction
21 of -- don't quote me on this, but I believe there
22 was a correction of a typo.

23 A. Oh. Well, I have seen his expert
24 rebuttal report, Mr. ██████████ rebuttal
25 report. I do not believe I've seen the amended

1 expert rebuttal report of Mr. [REDACTED]

2 Q. Okay. So I guess I could only ask you
3 about what you've seen.

4 So did you -- did you review it and
5 consider it?

6 A. I reviewed it and considered it, yes.

7 Q. Okay. And did you prepare anything
8 formal in response to it like what you did for
9 your initial or your rebuttal report in this case?

10 A. I --

11 MR. OPPENHEIMER: Objection
12 to the form.

13 You can answer.

14 A. I have not prepared a formal response.

15 Q. Okay. Why don't you put those two aside
16 for right now.

17 (Whereupon, exhibit is received
18 and marked SEC Osler Deposition Exhibit 8
19 for identification.)

20 BY MR. MOYE:

21 Q. Are you familiar with what's been marked
22 as Exhibit 8?

23 A. Yes, I am.

24 Q. What is Exhibit 8?

25 A. It's my rebuttal expert report with

1 respect to Mr. [REDACTED] original expert report.

2 Q. And what were you asked to do by
3 counsel -- what was your assignment in connection
4 with this rebuttal report?

5 MR. OPPENHEIMER: You can
6 answer as to what your assignment
7 was.

8 Q. And if it helps to refer to page 2,
9 paragraph 3, that's great. If not, you can go
10 ahead --

11 A. Ah, there we go. There we go. That's
12 the best way to put it. Thank you.

13 So I was asked to evaluate and offer my
14 opinions on Mr. [REDACTED] expert report on the
15 topics within my area of expertise.

16 Q. All right. And are those opinions set
17 forth in writing in your report?

18 A. Yes.

19 Q. I'm just connecting dots here. You were
20 asked to do something. You prepared a report.

21 A. I was asked to do something.

22 Q. Does this contain your opinions and
23 rebuttals to Mr. [REDACTED] initial expert report?

24 A. I -- yes.

25 Q. Okay. In other words, nothing left out.

1 This -- this was what you intended to submit?

2 A. Nothing left out at the time.

3 Q. All right. So I'd like to ask you about
4 certain statements that you made in your rebuttal
5 report to Mr. [REDACTED] and I'd like to ask you a
6 number of follow-up questions. So I'm going to
7 direct you to certain areas, but as in other parts
8 of the deposition today, if you think that to
9 answer that question, you need to refer to some
10 other portion of your rebuttal, you can do that.

11 A. Thank you.

12 Q. But let's -- let's direct your attention
13 to page -- to paragraph 9, Footnote 6. So
14 Footnote 6 comes at the end of the sentence which
15 says "He" -- meaning Mr. [REDACTED] -- "asserts that
16 XRP has a fixed supply that affects its trading
17 price, supposedly because of the 100 billion units
18 of XRP that were created initially, a number that
19 cannot be increased."

20 Did I read that correctly?

21 A. Are we in the paragraph or the footnote?

22 Q. First the paragraph and then the
23 footnote comes at the end of that sentence.

24 A. I'm sorry, I was reading the footnote.

25 Okay.

1 So "He asserts" -- okay -- "that XRP has
2 a fixed supply that affects its trading price,
3 supposedly because of the 100 billion units of
4 XRP..."

5 Q. Okay. And what did you say in your
6 footnote? Do you mind reading that out loud?

7 A. "To be clear, I do not disagree with
8 Mr. [REDACTED] statement that the total supply of XRP
9 is capped at 100 billion units. I disagree with
10 Mr. [REDACTED] suggestion that this limitation on the
11 total number of units of XRP can have any
12 economically significant influence on the
13 day-to-day trading prices of XRP or that it
14 provides any basis to distinguish between XRP and
15 fiat currency."

16 Q. Okay. So I have a number of follow-up
17 questions.

18 Is it your view, Professor Osler, that
19 the -- that caps or limits on the number of tokens
20 available in digital asset markets can have no
21 effect on token price?

22 MR. OPPENHEIMER: Objection
23 to form.

24 A. I -- no.

25 Q. You think they can have an effect on

1 token price?

2 A. I think I was clear in the footnote,
3 that it is not economically -- has no -- that it's
4 unlikely to have any sig -- economically
5 significant influence on day-to-day trading
6 prices. So up and down, up and down, up and down.

7 Q. All right. Hypothetically, if a
8 different asset, bitcoin, tomorrow had 100 million
9 tokens max, maximum, instead of the current
10 greater limitation and all other things remained
11 equal, would you expect the price of bitcoin to
12 change?

13 MR. OPPENHEIMER: Objection
14 to the form.

15 A. You know, I wasn't asked to opine about
16 bitcoin and I have nothing to say about bitcoin.

17 Q. Would you be able to draw any conclusion
18 about the supply of the digital token if it were
19 suddenly restricted significantly? Do you think
20 that would have -- do you think that the
21 principles of economics suggest that any -- that
22 there would be any effect on the price?

23 MR. OPPENHEIMER: Objection
24 to the form.

25 A. So there -- there's a big problem with

1 your comments, which is that supply is not
2 defined. And I have clarified that there are
3 various concepts of supply at play here. And I am
4 taking issue with one concept that Mr. [REDACTED]
5 applies, but he applies a different concept later
6 on and -- which is more consistent with the one I
7 would use that I think is relevant for what
8 happens on a reasonably semi-high-frequent basis.

9 Q. Okay. In your Footnote 6, you use the
10 qualifier "day-to-day trading prices of XRP."

11 Do you see that?

12 A. Yes.

13 Q. What do you mean by "day-to-day trading
14 prices"? How does day-to-day qualify or explain
15 what you're referring to?

16 A. I'm contrasting it with the, say,
17 averages over periods of time. I'm talking about
18 the day-to-day fluctuations in prices. And that
19 is consistent with my immediately following
20 analysis of what we find in macroeconomics with
21 respect to exchange rates, which is that the money
22 supply of a country has no discernible influence
23 on day-to-day, month -- week-to-week,
24 month-to-month movements of exchange rates except
25 in extreme and rare cases and the -- but, of

1 course, it does matter in the long run.

2 Q. Do you believe that the limitation on
3 the total number of XRP doesn't have any effect on
4 the day-to-day price for XRP?

5 A. It does -- the hundred billion
6 limitation? That particular supply concept does
7 not influence the changes from day-to-day in the
8 price of XRP.

9 Q. If -- hypothetically, if demand for XRP
10 were to go up significantly and the total number
11 of tokens available for XRP did not increase,
12 would you expect the day-to-day price of XRP to go
13 up?

14 MR. OPPENHEIMER: Objection
15 to the form.

16 A. So I'd just like to highlight. Is there
17 any difference between -- I mean, so this is a
18 hypothetical. If the supply were not to change
19 and demand were to rise, would the price go up?
20 In general in economic markets, that's what
21 happens.

22 Q. All right. Now, can you analogize that
23 to the XRP market? If the -- if the demand were
24 to increase significantly and the supply were not
25 to change, in other words, that limitation were

1 not to be expanded, would you expect -- would you
2 generally expect prices to rise?

3 MR. OPPENHEIMER: Objection
4 to form.

5 You can answer.

6 A. If the supply were not to change, yes.

7 Q. Okay. And what if the supply were --
8 were to be reduced using those same hypothetical
9 facts? Would you expect the price to -- to rise
10 more?

11 MR. OPPENHEIMER: Objection
12 to the form.

13 A. If the supply is reduced and the demand
14 simultaneously goes up? Is that --

15 Q. Yes.

16 A. In general, in markets, if the supply is
17 reduced and the demand goes up -- let's be clear
18 on the concept of supply that's supplied here. It
19 is not this hundred billion figure that matters.
20 It is the amount that's available to trade. That
21 is the supply concept that's relevant in this
22 context. That is the supply context -- concept
23 that Mr. [REDACTED] uses later on to highlight that the
24 fact that that supply is increasing could be
25 expected to reduce the price.

1 Q. Is there any timeline where the cap --
2 where -- where a cap or limitation on the number
3 of tokens would matter? Like over a very long
4 timeline, would it matter?

5 MR. OPPENHEIMER: Objection
6 to form.

7 A. Again, we have -- I need you to be
8 specific about the exact supply or quantity
9 concept you have in mind. Are you talking about
10 the long-run supply or the short-run supply?

11 Q. I think I'm going to stick to asking
12 questions. That's more fun. Let me -- let me
13 proceed.

14 If the supply of XRP varied from
15 day-to-day, would you expect that to influence the
16 price -- the day-to-day price of XRP?

17 MR. OPPENHEIMER: Objection
18 to the form.

19 A. As a general rule, as economists have
20 known for centuries now, changes in supply
21 typically influence price.

22 Q. Okay. So with respect to XRP -- and
23 this is a hypothetical -- if the escrow which is
24 limiting to some degree the circulating supply of
25 XRP, if the escrow were to be opened up and the

1 XRP that is currently in escrow was allowed to
2 circulate, would you expect the circulating supply
3 of XRP to increase quickly and significantly?

4 MR. OPPENHEIMER: Objection
5 to the form.

6 A. It seems like you defined it as
7 increasing.

8 Q. I said it was available.

9 A. That was --

10 Q. I haven't -- I haven't spoken about
11 demand.

12 A. No, but what you've said is the amount
13 available to trade has gone up. That is the --
14 that is a reasonable definition in the literature
15 of the short-run supply. So you said the -- the
16 amount available to trade. That means the
17 short-run supply of XRP.

18 Q. Okay. Let me get on the same page with
19 you.

20 So if the escrow is opened up and the
21 circulating supply is increased by the amount in
22 the escrow but demand does not change, what's your
23 expectation what would happen to the price of XRP?

24 MR. OPPENHEIMER: Objection
25 to the form.

1 You can answer.

2 A. The -- if the entire escrow were made
3 available immediately or something like that, I
4 would expect the price to go down.

5 Q. All right. Okay. Let's look at
6 paragraph 10, the next paragraph. This starts at
7 the bottom of page 5 and goes over to the top of
8 page 6. The phrase I'm going to ask you about is
9 contained on page 6. At the top of page 6 within
10 paragraph 10, you say "For XRP this is far less
11 than 100 billion units in existence because many
12 billions of XRP are, A, sequestered in escrow
13 accounts and cannot be traded or potentially, B,
14 held by individuals or entities with no interest
15 in selling their XRP holdings."

16 Do you see that?

17 A. I do.

18 Q. And that's what you wrote in your
19 rebuttal report?

20 A. I did.

21 Q. Okay. What is your basis for suggesting
22 or concluding that XRP is being held by
23 individuals with no interest in selling their XRP
24 holdings?

25 MR. OPPENHEIMER: Objection

1 to form.

2 You can answer.

3 A. I was referring to some of the original
4 Ripple insiders.

5 Q. Okay. Such as Mr. Larsen,
6 Mr. Garlinghouse?

7 A. I didn't have specifics in mind.

8 Q. Okay. Are you aware that Ripple, the
9 company, and Mr. Larsen and Mr. Gar --
10 Garlinghouse have in the past had a lot of XRP in
11 their holdings?

12 MS. PROSTKO: Objection to
13 form.

14 MR. OPPENHEIMER: Objection
15 to form.

16 MR. MOYE: She beat you to
17 it.

18 MR. OPPENHEIMER: You can
19 answer.

20 A. "A lot" is very vaguely defined. I know
21 they have had some.

22 Q. Okay. Are you aware that in the past,
23 Ripple and Larsen and Garlinghouse have sold much
24 of their XRP holdings?

25 MR. OPPENHEIMER: Objection

1 to form.

2 MS. PROSTKO: Objection to
3 form.

4 A. I have -- I'm aware that sales have been
5 made.

6 Q. Can you explain then why you say in
7 paragraph 10 that "XRP is being held by
8 individuals or entities with no interest in
9 selling their XRP holdings"? Who are you
10 referring to?

11 MR. OPPENHEIMER: Objection;
12 mischaracterizes the document.

13 You can answer.

14 A. I'm -- I'm just referring to people who
15 own a lot of it and -- general insiders with
16 respect to Ripple is how I thought about that.

17 Q. Okay. Why do you believe that these
18 insiders have no interest in selling their XRP?
19 What -- what allows you to make that conclusion or
20 suggestion?

21 MR. OPPENHEIMER: Objection
22 to form; mischaracterizes the
23 document and her testimony.

24 You can answer.

25 A. I have not thought about that question.

1 Q. Well, what were you thinking when you
2 wrote in B that some of the hundred billion XRP in
3 existence -- that many billions of the XRP is
4 being "held by individuals or entities with no
5 interest in selling their XRP holdings"?

6 MR. OPPENHEIMER: Objection.

7 Continues to mischaracterize the
8 document. I don't know why you keep
9 ignoring the word "potentially," but
10 okay.

11 A. I -- indicating that there are
12 individuals that have holdings and that it is my
13 understanding they have no intention of selling
14 them any -- in any great amount any time soon.

15 Q. All right. Well, appreciate that
16 clarification, but I'm still interested in an
17 answer, if you're willing to give one, is where
18 you obtained the -- what's the source for your
19 understanding that individuals such as Ripple
20 insiders are not interested in selling the XRP
21 that they hold?

22 MR. OPPENHEIMER: Objection;

23 mischaracterizes and asked and
24 answered multiple times.

25 A. So I have clarified that I'm aware that

1 there are Ripple insiders and some people who were
2 once insiders who are not that have significant
3 holdings and it is -- it was my impression that
4 those holdings were fairly stable and so that is
5 the -- the source of my statement.

6 Q. Okay. So would it be fair to say that
7 in articulating this part of your report, you did
8 not consider whether, if the price for XRP were to
9 increase significantly, those individuals might
10 have a desire to sell in the future?

11 MR. OPPENHEIMER: Objection
12 to the form.

13 A. That's a big hypothetical.

14 Q. It is, but you're an expert. You can
15 consider and answer that.

16 A. You know, that's beyond what I have an
17 opinion about in this document and beyond what I
18 have an opinion about now.

19 Q. Okay. Let's look at paragraph 11. Now,
20 I'm not an economist, so I may -- I may not
21 understand this the way you wrote it.

22 But am I correct that in paragraph 11,
23 you're talking about various models or -- or
24 properties of fiat currencies and then you're
25 making an application to how those might affect

1 XRP? Did I understand that correctly?

2 MR. OPPENHEIMER: Objection
3 to form.

4 A. I -- I -- I'm not sure that's a -- a
5 great articulation of what's in the paragraph.

6 Q. Well, let's look at the first paragraph.
7 You say there is a -- "a myriad."

8 Did you mean many?

9 A. Many.

10 Q. Many "empirical studies find that a
11 country's money supply has little to no detectable
12 impact on its exchange rates day-to-day,
13 week-to-week, or month-to-month."

14 A. Yes, I say that.

15 Q. And you're referring to fiat currencies,
16 correct?

17 A. I'm referring to fiat currencies. And
18 as I said in Footnote 6, by "day-to-day," I mean
19 it changes from day-to-day.

20 Q. Okay. And then you talk about the
21 hypothesis behind some of these myriad studies.
22 You say, "To quote one of these myriad
23 statements," and you have a quote in there about
24 empirical studies, and then you talk about the
25 time horizons.

1 And then you draw a conclusion: "This
2 evidence suggests that the supply of XRP - however
3 it is measured - it also likely to have equally
4 limited influence on XRP exchange rates."

5 Did I read that last sentence correctly?

6 A. You read that last sentence correctly.

7 Q. Okay. So am I correct that you are
8 saying that you're saying these empirical studies
9 have been done and they talk about the supply of
10 the currency, and because of what I see in these
11 other studies, I don't think that the supply of
12 XRP, however it is measured, is going to impact
13 very much the XRP exchange rate?

14 MR. OPPENHEIMER: Objection

15 to the form.

16 You can answer.

17 A. I think the sentence speaks for itself.
18 The evidence suggests that the supply of XRP is
19 likely to have an equally limited influence on XRP
20 exchange rates.

21 Q. Is there any academic literature
22 applying the same economic models that are
23 applicable to fiat currency to cryptocurrency,
24 particularly with respect to supply of those
25 currencies?

1 A. I couldn't --

2 MR. OPPENHEIMER: Objection.

3 A. So are -- I guess the question is do you
4 mean models or empirical analyses?

5 Q. Anal -- we can say analyses, sure.

6 MR. OPPENHEIMER: Same
7 objection.

8 You can answer.

9 A. Okay. I'm not aware of any.

10 Q. Are you making an assumption for
11 purposes of paragraph 11 that the same models and
12 rules that you see in the supply of fiat currency,
13 that those would apply the same way with regard to
14 cryptocurrencies?

15 MR. OPPENHEIMER: Objection
16 to form.

17 You can answer.

18 A. I'm highlighting a parallel that the
19 evidence -- there's a consensus of evidence with
20 respect to fiat currencies; that the supply of
21 those currencies has no detectable influence on
22 changes in the prices of those currencies over
23 short horizons, meaning any -- short horizons such
24 as those I've included here.

25 And so I'm looking at the supply of XRP

1 and I'm saying if the evidence about one form of
2 money is correct, then we can perhaps use that as
3 an insight into these -- how it works with this
4 cryptocurrency.

5 Q. Are you aware that Ripple has escrowed a
6 very large amount of the XRP that it owns?

7 A. Yes.

8 MR. OPPENHEIMER: Objection
9 to the form.

10 THE WITNESS: Sorry.

11 Q. What's your -- what's your understanding
12 of why Ripple did that?

13 MR. OPPENHEIMER: Objection.
14 You can answer if you know.

15 A. My understanding was that there was a
16 fear among users that the -- that there was a
17 potential for a very large increase that could be
18 detrimental to the functioning of the market and
19 they wanted to reassure people that there wouldn't
20 be.

21 Q. Do you view that fear, as you describe
22 it, among users as irrational?

23 A. I see a strong parallel to the -- the --
24 how am I going to -- I'm looking for a phrase. My
25 apologies for being slow -- a strong parallel to

1 the way money is managed in fiat currency
2 economies, which is it's very important, as we
3 know, for governments, and specifically central
4 banks, to ensure that money supplies do not grow
5 extremely rapidly.

6 And so there was a need to provide the
7 same reassurance.

8 Q. And with regard to these users, as
9 you've described them, do you believe that these
10 users are people that are only holding XRP for a
11 minute each day as they do foreign currency
12 transactions or are you thinking of people that
13 hold their XRP as a store of value for much longer
14 periods of time?

15 MR. OPPENHEIMER: Objection
16 to the form.

17 A. You know, I wasn't thinking specifically
18 about exactly which kind of Ripple user.

19 Q. Well, I think according to paragraph 11,
20 you said -- if I understand paragraph 11
21 correctly, I think you're saying that the amount
22 of currency in circulation does not affect the
23 day-to-day price one way or the other.

24 And so I'm asking you if you think
25 Ripple's actions in escrowing a large amount of

1 the XRP that it owns had any economic basis if the
2 amount in circulation would not have affected the
3 day-to-day price of XRP?

4 MR. OPPENHEIMER: Objection
5 to the form.

6 A. There's an elision here that I don't see
7 the -- it's not clear -- there's an elision here
8 and I -- that would need to be clarified before I
9 could answer and the elision is -- oh, God, now I
10 have to reconstruct it.

11 You've got the escrowing and day-to-day
12 price changes. And would the escrowing have
13 affected the day-to-day price changes? Maybe for
14 one day when it was announced, but otherwise, no.

15 Q. Okay. So just before I move on, can you
16 clarify whether you thought the users that -- that
17 Ripple wanted to reassure in creating the escrow
18 were the people that were doing foreign currency
19 exchanges using ODL?

20 A. As I --

21 MR. OPPENHEIMER: Objection.
22 You can answer.

23 THE WITNESS: Sorry.

24 A. As I explained, I didn't think about
25 exactly which users were going to care about it.

1 Q. When was the escrow created?

2 A. I couldn't -- I don't remember the
3 precise date.

4 Q. Was it created before or after ODL was
5 commercially available?

6 A. I don't know the precise date.

7 Q. Okay. Let's look at paragraph 21 of
8 your rebuttal. Nope, I'm sorry. Went ahead too
9 fast. Paragraph 17, bottom of page 9.

10 The first sentence of paragraph 17
11 indicates that "The absence of contrast between
12 fiat currencies and XRP in this regard also
13 invalidates Mr. [REDACTED] implicit assertion that
14 Ripple chose to fix the supply of XRP day-to-day,
15 and grow it at a slow pace, to lead investors to
16 expect its price to rise."

17 Do you see that?

18 A. I see that.

19 Q. What do you mean by the qualifying
20 phrase, "in this regard"? What are you referring
21 to?

22 A. Oh, good Lord. I apologize. I have to
23 read the context. You can see that the whole
24 paragraph refers to what's before it.

25 Q. Yes. Please read paragraphs 16 and 17

1 together if that helps.

2 MR. OPPENHEIMER: Read as
3 much of the report as you need to to
4 get the context.

5 MR. MOYE: Or do that.

6 (Pause)

7 A. So the question you posed had to do with
8 what I was referring to when I say "in this
9 regard"?

10 Q. That's right.

11 A. I am highlighting that with respect to
12 Mr. [REDACTED] supposed contrast between fiat
13 currencies and XRP in terms of the supply, there
14 is no contrast; that fiat currencies do not have
15 variable supply in contrast to -- let's see. What
16 is it? Fiat currencies do not have variable
17 supply in contrast to what Mr. [REDACTED] had claimed.

18 Q. Do fiat currencies have fixed supply?

19 MR. OPPENHEIMER: Objection
20 to the form.

21 A. I think we need to be very careful about
22 the nature of fixed supply as I am in my rebuttal.

23 I highlight that the supply that matters
24 for day-to-day pricing is kind of a slow-moving
25 amount that is similar to the slow growth in a

1 country's money supply in a well-managed country.

2 And so that on a minute-by-minute,
3 day-to-day -- usually day-to-day basis, there is
4 no change in the supply of XRP or in a country's
5 money supply. That it's -- and that is why dollar
6 exchange rates and everything else fluctuate quite
7 dramatically as I showed in Figure 2 of this
8 rebuttal.

9 Q. So are you asserting that US dollar
10 day-to-day has a fixed supply?

11 MR. OPPENHEIMER: Objection
12 to the form.

13 A. I've clarified that it has a controlled
14 supply. And, in fact, I show that in one of the
15 figures in this rebuttal. And, yes, in Figure 1
16 of this rebuttal, I show that U.S. money supply
17 grows slowly and fairly steadily and I highlight
18 that that is a controlled supply, if you will.

19 So I think the relevant contrast is, is
20 it controlled at any moment or is it changing at
21 every moment like a stablecoin in order to keep a
22 fixed price? And the answer is, it is not
23 changing at every moment like a stablecoin. In
24 both cases, fiat currencies and XRP, contrary to
25 Mr. [REDACTED] claim that they're different, in fact,

1 they are the same. They are growing at slow and
2 relatively steady rates.

3 Q. So I understand your point about fiat
4 currency being different in its supply than a
5 stablecoin. I do want to drill down more, though,
6 and understand what you -- what you mean by a very
7 slow rate of growth.

8 With regard to December 21st, 2021, do
9 you believe that the supply of US dollars is fixed
10 or variable?

11 MR. OPPENHEIMER: Objection
12 to the form.

13 A. I -- I think that that's -- I just
14 clarified that fixed is not the relevant concept.

15 Q. Do you believe that it is changing
16 during the day, during December 21st, 2021?

17 MR. OPPENHEIMER: Objection
18 to the form.

19 A. I be -- so let's be -- let's talk about
20 monetary theory and how the money supply process
21 works. The central bank has indirect control over
22 the money supply. It controls something called
23 the monetary base. As I describe in this
24 rebuttal, the money supply is the monetary base
25 times something known as the money multiplier.

1 And in -- in -- in most countries most of the
2 time, the -- the product of the two gives you the
3 money supply.

4 And so the central bank is doing its
5 best to create slow, steady growth in the money
6 supply, changing the monetary base as needed. And
7 the signals in there are a little loose, so on any
8 given day, there may be some slight changes going
9 on. But the -- what the central bank is
10 achieving, as highlighted in Figure 1 very
11 clearly, is slow, steady growth in the money
12 supply. That is what's being achieved.

13 Q. I understand that's what you're
14 referring to in Figure 1. What I'm asking you may
15 be a different question, but I think we're getting
16 to the heart of it.

17 Do you think that the money supply
18 available in US dollars on December 21st, 2021, is
19 changing, however slightly, during today, during
20 the day?

21 MR. OPPENHEIMER: Objection;
22 asked and answered.

23 Q. You can answer.

24 MR. OPPENHEIMER: You can
25 answer again.

1 A. You know, it -- I guess what I'm trying
2 to say is Mr. [REDACTED] characterization is false
3 whether or not it changes a tiny bit on a day.

4 Q. Perfect. Thank you.

5 And with regard to the analogy between
6 the central banks and the indirect supplier using
7 and how we're -- and trying to get to the function
8 or operation of XRP, how it's performing, do you
9 view Ripple as acting analogous to central bank
10 with regard to XRP the way the Federal Reserve
11 acts with regard to the US dollar?

12 MR. OPPENHEIMER: Objection
13 to the form.

14 A. They are very different.

15 Q. Very different.

16 Did you not suggest earlier that the
17 goal of the Federal Reserve would be to grow
18 slowly the supply of US dollars over time? Is
19 that -- did I understand your testimony correctly?

20 A. That is correct. I said that.

21 Q. Okay. Do you believe Ripple has the
22 same goal or objective with regard to the supply
23 of XRP, to have it grow slowly over time?

24 MR. OPPENHEIMER: Objection
25 to the form.

1 A. I wouldn't know.

2 Q. Why do you think Ripple has escrowed
3 such a significant percent -- such a significant
4 percentage of the XRP that would otherwise be
5 available to trade if it was not interested in
6 controlling in some way the amount of XRP
7 available?

8 MR. OPPENHEIMER: Objection;
9 mischaracterizes the record, assumes
10 facts not in evidence, ambiguous, and
11 I think asked and answered.

12 You can answer again.

13 Q. Yeah, go ahead.

14 A. Ripple was sending a signal to the
15 market that one extreme possibility would not
16 happen. There was -- the -- the market recognized
17 an extremely unlikely but nonetheless, in their
18 view, possible outcome of a huge flood in the
19 amount of XRP available all at once.

20 And Ripple was escrowing it to send a
21 signal to people that there would not be a huge
22 flood all at once.

23 Q. Are Ripple and its founders continuing
24 to sell XRP into the market today?

25 A. Today like today this day?

1 MS. PROSTKO: Objection.

2 Q. Not like today the 21st of December, but
3 this year.

4 MR. OPPENHEIMER: Objection
5 to form.

6 A. My understanding is that they -- the way
7 they choose to sell has to do with what's needed
8 to support the transactions on ODL in particular,
9 I believe. In fact -- yeah. I believe --

10 Q. Is it analogous to growing -- sorry to
11 interrupt. No, that's fine.

12 MR. OPPENHEIMER: Were you
13 done with your answer?

14 THE WITNESS: I'm done
15 answering.

16 Q. Okay. Is it in any way analogous to
17 growing the supply of XRP slowly over time as
18 needed?

19 MR. OPPENHEIMER: Objection
20 to the form.

21 You can answer.

22 A. There's a -- there's a difference here
23 that's quite important. The -- the goal of a
24 central bank in controlling the money supply is to
25 avoid inflation, avoid too many change -- too fast

1 changes in the value of a money in terms of goods
2 and services.

3 The goal of Ripple is to ensure there is
4 sufficient liquidity, sufficient amount for
5 trading so that people don't run short. And a
6 shortage of money is something that has happened
7 historically and can be a problem.

8 Q. So how much -- do you have any idea how
9 much XRP is needed on a day-to-day or short-term
10 basis to trade in connection with ODL?

11 A. I could not put a precise number on it
12 at all.

13 Q. Are you suggesting in your answers today
14 that Ripple and its founders are only selling XRP
15 into the market to increase the supply and allow
16 ODL transactions to occur instead of a variety of
17 other reasons?

18 MR. OPPENHEIMER: Objection
19 to the form.

20 MS. PROSTKO: Objection to
21 the form.

22 A. I could not preclude other reasons.

23 Q. Okay. Let's look at paragraph 18. I'm
24 paraphrasing you, but you indicate that
25 Mr. [REDACTED] incorrect. You think there's not a

1 meaningful distinction between fiat currencies and
2 XRP with respect to whether the supplies and
3 prices are fixed or variable and that this
4 incorrect assertion also extends to his discussion
5 of stablecoins.

6 Am I more or less correct about what
7 you're saying?

8 A. We haven't gotten to the meat of what
9 I'm saying in that paragraph.

10 Q. All right. Let me ask you some related
11 questions to what you're saying in that paragraph.

12 On a -- on any given day of the week --
13 could be this week, could be last week, could be
14 next week -- do you believe XRP has a variable or
15 a fixed supply?

16 MR. OPPENHEIMER: Objection

17 to the form.

18 A. I have been very clear that fixed is not
19 the concept I'm working with; that it would not be
20 a relevant -- in -- in the context of the supply
21 of XRP, controlled would be -- or, anyhow. It's
22 fixed on a -- on most individual days, it is
23 fixed. I would be happy to say that.

24 Q. Okay. Does XRP have a fixed price
25 relative to the price of the US dollar?

1 A. No, it does not.

2 Q. On any given day of the week, does the
3 USDC stablecoin have a variable supply?

4 A. It does so far as I'm aware. My
5 understanding of how those work is that the supply
6 changes to keep the price in respect to US dollar
7 fixed.

8 Q. Okay.

9 A. The point of the paragraph is that that
10 does not fix the price of the USDC in terms of any
11 other currency.

12 Q. Any other currency. Okay.

13 But you agree USDC does have a fixed
14 price relative to -- that USDC does have a fixed
15 price relative to US dollar?

16 A. Relative to one currency, yes.

17 Q. Okay. Let's go to paragraph 19.

18 You say "Contrary to the assertion in
19 paragraph 27 of Mr. [REDACTED] report, economic
20 analysis indicates that a stablecoin would be
21 neither better nor worse than XRP as a vehicle
22 (bridge) currency because the value of a
23 stablecoin is only stable with respect to one
24 currency. The issues Mr. [REDACTED] identifies with
25 XRP in paragraphs 28 and 29 of his report would

1 therefore arise equally with a stablecoin."

2 Did I read that correctly?

3 A. You did read that correctly.

4 Q. All right. What is the assertion that
5 Mr. [REDACTED] made in paragraph 27 of his report?

6 MR. OPPENHEIMER: Objection
7 to form.

8 Q. I can give you a copy of the report
9 if -- if it would be helpful.

10 A. And this is his -- not --

11 Q. This is his original report.

12 A. -- not his amended rebuttal, but --

13 Q. Okay. I'm going to hand you -- the
14 question is still pending, but I'm going to hand
15 you what's been marked as Exhibit 9 because I
16 believe that may assist your answer.

17 A. All right.

18 MR. OPPENHEIMER: I'll
19 withdraw the objection now that she's
20 got a copy.

21 (Whereupon, exhibit is received
22 and marked SEC Osler Deposition Exhibit 9
23 for identification.)

24 THE WITNESS: Okay.

25 MR. MOYE: Perfect.

1 A. 27.

2 Q. So what's the assertion you're
3 disagreeing with?

4 A. Okay. So the overall assertion is that
5 stablecoin -- you know, it's hard to know where to
6 start. I'm so sorry. The overall -- the
7 overall -- contrary to the assertion in paragraph
8 27, he's arguing in general that a stablecoin
9 would be superior as a -- as a vehicle currency
10 and -- which is colloquially known as a bridge
11 currency and -- and I'm taking issue with that.

12 Q. You disagree with that for the reasons
13 set forth in paragraph 19 of your report?

14 MR. OPPENHEIMER: Objection
15 to the form.

16 You can answer.

17 A. Okay. I disagree with that for reasons
18 set out in paragraph 18, and paragraph 19 can be
19 interpreted as a summary, if you will, of the
20 implications of paragraph 18.

21 And what I highlight in paragraph 18 is
22 that the value of a stablecoin is only stable with
23 respect to one currency. So, for example, if --
24 suppose we wanted to use a stablecoin to get from
25 Japanese yen to pesos as we've been talking about.

1 The initial exchange rate is between the yen and
2 the stablecoin, which is tied to the dollar, and
3 the subsequent exchange rate is between the
4 stablecoin and the peso and the stablecoin again
5 is tied to the dollar.

6 Well, we know that dollar exchange rates
7 are quite volatile, so the value of the stablecoin
8 in the two exchange rates for that transaction
9 would be unstable. Would be -- well, let me just
10 say would not be stable.

11 And the idea put forth by Mr. [REDACTED]
12 that the median price would be fixed, is
13 incorrect.

14 Q. Okay. In paragraph 19, you -- you're
15 disagreeing with Mr. [REDACTED] for the reasons
16 explained. You say "economic analysis indicates."

17 What economic analysis are you referring to? Are
18 you referring to your own understanding and
19 analysis or something else?

20 MR. OPPENHEIMER: Objection

21 to form.

22 A. I'm referring to the economic analysis
23 in my report --

24 Q. Okay.

25 A. -- where I -- yeah. I take the broad

1 understandings in the literature, I apply them to
2 the facts, and that's my analysis.

3 Q. All right. Let's look at paragraph 21.

4 MR. OPPENHEIMER: Of which
5 report?

6 MR. MOYE: Of the Osler
7 rebuttal.

8 MR. OPPENHEIMER: Thank you.

9 Q. So there's a sentence in here. You say
10 "First, and most significantly, a person" -- you
11 quote Mr. [REDACTED] You say he's mistaken. You say
12 his assertion "is flatly incorrect." And then you
13 say "The vast majority of fiat currency
14 transactions that do not start or end in US
15 dollars require two steps, not one."

16 Do you see that?

17 A. Yes.

18 Q. Okay. So I have a related question.

19 A. I think it's important for the record to
20 just highlight what Mr. [REDACTED] did say.

21 Q. Please read it.

22 A. "Mr. [REDACTED] mistakenly asserts that 'when
23 using a traditional cross-border payment systems
24 there is a single foreign exchange transaction.'"

25 Q. Correct. So I'm asking you about ODL.

1 What percentage of ODL volume do you
2 understand is involved in a payment corridor that
3 does not start or end in US dollars?

4 MR. OPPENHEIMER: Objection
5 to the form.

6 You can answer.

7 A. I would have -- I -- I do not have
8 precise numbers.

9 Q. Do you know if that amount is
10 significant at all?

11 MR. OPPENHEIMER: Objection
12 to form.

13 A. I do not know, I'm sorry. What I do
14 know is -- well, I'll just leave it at that.

15 Q. So do you know -- do you know whether,
16 in fact, the percentage of ODL volume involved in
17 a payment corridor that does not start or end in
18 USDA and USD is extremely small, less than a
19 percentage?

20 MR. OPPENHEIMER: Objection
21 to form.

22 A. Here's what I do know. Ripple has
23 focused on creating networks in the Pacific Rim
24 and has created quite a few relationships with
25 Pacific Rim remittance service providers as we

1 discussed this morning. And that is a logical
2 strategic development according to standard
3 economic analysis for disruptive innovation and
4 dealing with products that require a network.

5 So that all fits.

6 Q. Let me ask you hypothetically. Assuming
7 the Pacific Rim were in this corridor that
8 you're -- that you've been discussing. Suppose it
9 runs, hypothetically, to or from the United
10 States.

11 Wouldn't that eliminate for the purpose
12 of that corridor virtually all transactions
13 within that remittance corridor because it would
14 either start or end in US dollars?

15 MR. OPPENHEIMER: Objection

16 to form.

17 A. I -- I -- perhaps I'm unable to make
18 sense of your question.

19 Remittances go all throughout that
20 region, from one country to another, from
21 Singapore to Malaysia, from Thai -- Japan to
22 Thailand, from Hong Kong to all of these
23 countries. From South Korea, that's another one
24 of the rich ones, to the Philippines.

25 So the dollar would -- if the U.S. is

1 added as another node, that would not change the
2 amount of -- that would not change anything.

3 Q. So let's be clear about this. We're
4 talking about ODL.

5 Do you know, in fact, the country of
6 origin and the destination country for all of the
7 transactions that take place in that remittance
8 corridor?

9 MR. OPPENHEIMER: Objection
10 to form.

11 You can answer.

12 A. I -- I do not know that -- that
13 information.

14 Q. Do you believe that the ODL -- that the
15 transactions using ODL in the Pacific remittance
16 corridor do not mostly involve US dollars in the
17 originating or ending currency?

18 MR. OPPENHEIMER: Objection
19 to form.

20 You can answer.

21 A. I don't -- within -- maybe I -- I just
22 lost track of the question. It's getting late in
23 the day. Say it again.

24 Q. Yeah.

25 Did you look to determine for the use of

1 ODL the amount of transactions which did not begin
2 or end with US dollars?

3 MR. OPPENHEIMER: Objection.

4 You can answer.

5 A. I did not look. I would be surprised if
6 such information were available.

7 Q. But without looking, you can't -- you
8 can't be certain, can you?

9 A. I cannot be certain, but I do know
10 where the -- yeah.

11 Q. Let's look at paragraph 21. Continue to
12 look at paragraph 21, a little further down. You
13 talk about currency pairs including the Danish
14 krone and the euro and the Japanese yen and the
15 euro. I have some questions about that.

16 What's the basis for your understanding
17 about how these currency pairs operate? I didn't
18 see a footnote but I could have missed it.

19 A. This is common knowledge with respect to
20 how the foreign exchange market works.

21 Q. Okay. Is there a currency pair for the
22 Australian dollar to the Philippine peso?

23 A. I don't believe so.

24 Q. Is there a currency pair for the Swiss
25 franc to currency other than the U.S. dollar?

1 A. So let's be clear. Perhaps we need to
2 be precise about when you say "a currency pair."
3 The pair exists. Is there active trading in the
4 direct exchange? I do not believe so.

5 Q. All right. Is it possible there's a
6 host of other trading pairs where there's no
7 active trading going on?

8 MR. OPPENHEIMER: Objection
9 to form.

10 You can answer.

11 A. So technically one could be precise
12 about the number of theoretical pairs. I worked
13 out the number using the United Nations' number of
14 active currencies, which is 154. And you can do
15 the math. And it turns out that the theoretical
16 number of pairs is something above 11,000.

17 And in terms of the actively traded
18 pairs, it -- the understanding around those of us
19 who know foreign exchange, supported by -- well,
20 anyhow, the understanding, the knowledge, is that,
21 by and large, the vast majority of these only
22 trade directly with dollar and the major
23 exceptions are now euro within Europe.

24 Q. Do you know what percentage of ODL's
25 volume is with Pacific Rim?

1 MR. OPPENHEIMER: Objection;
2 asked and answered.

3 A. I'd like to highlight that in my
4 analysis, I'm looking forward to -- I'm
5 considering whether the product can become an
6 important competitor. And so I look at the total
7 amount. The total, all the corridors of
8 remittances.

9 And as I highlight in paragraph 22,
10 there are massive amounts of remittances from
11 states in the Near East to the subcontinent of
12 Asia. There are tons of remittances going around
13 Asia. There's tons of remittances going from
14 Europe now to the Near East. So those are the
15 channels that I consider important, the ones where
16 Ripple could in the future compete.

17 Q. So I apologize if this is too similar to
18 some of the prior questions I've asked you. I'm
19 used to repeating myself a little bit.

20 Can you tell me why you didn't think it
21 was important to look at Ripple's experience using
22 ODL in forming your opinion about whether ODL is
23 well suited to compete as a disruptive technology?
24 I mean, wouldn't it make sense to look at Ripple's
25 past experience in determining whether it has

1 built a better mousetrap than the rest of the
2 world?

3 MR. OPPENHEIMER: Objection.

4 You can answer.

5 A. There's an assumption here that I did
6 not look. The premise is false.

7 Q. Did you look at MoneyGram?

8 MR. OPPENHEIMER: Objection.

9 You can answer.

10 A. I did not look closely at MoneyGram.

11 Q. Did you look at the volume that goes
12 back and forth through using ODL to the Pacific
13 Rim?

14 A. As I have stated already, that
15 information is not available.

16 Q. How do you know it's not available? Did
17 you ask Ripple?

18 MR. OPPENHEIMER: Objection.

19 A. As I have stated, I did not reach out to
20 Ripple and I have not communicated with Ripple.

21 Q. Okay. And do you know whether the flow
22 of money between the United States and Mexico
23 flows predominantly in one direction or the other
24 as -- as used by Ripple's ODL product?

25 MR. OPPENHEIMER: Objection.

1 A. As I have said, I don't have the
2 information on what's exactly on ODL.

3 Q. Okay. So let's look at paragraph 25.
4 The top of page 13, in the middle of paragraph 25,
5 you're referring to "interbank transfers." You
6 say "the kind Mr. [REDACTED] considers here are the
7 most expensive with average costs in excess of 10
8 percent for remittances."

9 Do you see that?

10 A. I see that text.

11 Q. Okay. So with respect to those
12 remittances which have the fees in excess of 10
13 percent that you've discussed previously today,
14 who is bearing those costs? Is it the end user?

15 MR. OPPENHEIMER: Objection
16 to form.

17 A. The 10 percent number I cited earlier,
18 as I explained earlier, is the sum of costs borne
19 by senders and receivers.

20 THE REPORTER: Borne by?

21 THE WITNESS: Senders and
22 receivers.

23 Q. So at least one of those would be the
24 end user, correct? The person who ends up with
25 the funds?

1 MR. OPPENHEIMER: Objection

2 to form.

3 You can answer.

4 Q. Let's use your terminology. I
5 apologize.

6 A. Okay.

7 Q. All right. Do you understand
8 Mr. [REDACTED] report to be evaluating costs to
9 senders and receivers or is he evaluating costs to
10 remittance services?

11 MR. OPPENHEIMER: Objection.

12 You can answer.

13 A. Let's be clear. Mr. [REDACTED] statement
14 is ambiguous in many ways. And as I highlight
15 here, he -- he con -- he appears to confuse
16 bid/ask spreads and fees.

17 So without clarity, it's -- it would be
18 very difficult to know exactly who he had in mind.

19 Q. Are you certain you understood what he
20 was saying in his report? Is it possible you
21 misperceived or misunderstood?

22 MR. OPPENHEIMER: Objection

23 to the form.

24 You can answer.

25 A. I am certain that he was confused

1 because he supports his description of fees with
2 information about bid/ask spreads rather than fees
3 from an academic paper.

4 THE REPORTER: From?

5 THE WITNESS: From an
6 academic paper. You know what? I'm
7 getting really dry.

8 Q. Let's look at paragraph 27. You say
9 "Mr. [REDACTED] argues that 'anyone buying XRP to
10 facilitate cross-border payments would have to
11 bear the substantial price volatility of XRP.'
12 This argument misunderstands the nature of
13 volatility and how the ODL product actually
14 functions."

15 Do you see that?

16 A. Yes.

17 Q. So in your report -- or in making that
18 statement, are you talking about the -- are you
19 talking about money transmitters or are you
20 talking about market participants, including
21 market makers?

22 A. With respect to what?

23 Q. Your criticism in paragraph 27.

24 A. I'm discussing Mr. [REDACTED] point that
25 anyone buying XRP to facilitate. So however he's

1 defining "anyone," I'm disputing -- I'm -- I'm
2 disputing that point.

3 Q. Okay. Are -- are you intending to
4 suggest that market makers would not be subject to
5 substantial price volatility in XRP?

6 MR. OPPENHEIMER: Objection
7 to form.

8 A. What I highlight is that the standard
9 deviation of -- or the volatility of exchange rate
10 of the XRP price in terms of dollars at the
11 five-second time horizon is less than 1/100th of 1
12 percent. And I contrast that with a figure he
13 provides of 65.1 percent, which is this annualized
14 version of one-month volatility and is not
15 relevant to the actual volatility that would be --
16 that anyone would be subject to at the five-second
17 time horizon.

18 And this -- this amount of volatility is
19 quite small. And I also highlight -- I believe I
20 highlight it in there somewhere -- that dollar --
21 I highlight in these documents the dollar is quite
22 volatile. It's an -- dollar exchange rates are
23 volatility and, as a result, anyone who uses the
24 normal foreign exchange markets to get from one --
25 from one nondollar currency to another and -- and

1 uses the dollar as a vehicle currency would also
2 be subject to volatility in that small time
3 horizon.

4 Q. As you understand the ODL corridor, does
5 anyone hold XRP for longer periods of time than
6 you suggest in your report?

7 MR. OPPENHEIMER: Objection
8 to form.

9 A. It's my understanding that the -- so the
10 sender of the fiat currency does not and the
11 remittance service provider does not. Ripple, as
12 a market maker, might or might not. And then on
13 the other end, you've got the remittance service
14 provider on the other end, which can be the same
15 as the first one, they do not. And the final
16 recipient of the fiat currency does not.

17 Q. Are you assuming that Ripple does not
18 use market makers to provide liquidity in the ODL
19 corridor?

20 THE REPORTER: I'm sorry,
21 repeat.

22 Q. Are you assuming that Ripple does not
23 use market makers to provide liquidity in ODL
24 corridors?

25 MR. OPPENHEIMER: Objection

1 to form.

2 A. I have -- so what I have -- okay. No,
3 I'm not assuming.

4 Q. You think you have some knowledge
5 that -- that precludes the possibility of Ripple
6 using market makers in its ODL corridors?

7 MR. OPPENHEIMER: Objection
8 to form.

9 A. Okay. We're getting tangled. Let's
10 start again on that one.

11 Q. All right. Does Ripple use market
12 makers to provide liquidity in its ODL corridors?

13 MR. OPPENHEIMER: Objection.

14 A. Clarify what you mean for "use market
15 makers," please.

16 Q. Yeah. Do people who use ODL, the ODL
17 product, for foreign currency exchange, do they
18 obtain their XRP from market makers other than
19 Ripple to effectuate these transactions?

20 MR. OPPENHEIMER: Objection
21 to form.

22 A. My understanding of the ODL product is
23 that Ripple provides the XR -- does the
24 transaction in the middle as a market maker, as I
25 said earlier, and that Ripple sometimes sources --

1 and I -- the -- the XRP from other market
2 participants whether they're market makers or not.

3 Q. Okay. So I think you've explained your
4 understanding and I appreciate that and I thank
5 you for that.

6 I'm going to suggest a hypothetical.
7 Suppose you're wrong and suppose that in ODL
8 transactions, remittance providers reach out to
9 market makers other than Ripple to buy and sell
10 XRP in order to effectuate these transactions.

11 Under those conditions, wouldn't those
12 market makers be exposed to price volatility in
13 XRP because they are going to hold their XRP
14 longer than a minute or five seconds or -- or this
15 shorter time period we've talked about?

16 A. The nature of market making is to take
17 on inventory risk. This is one of the things that
18 all market makers in all circumstances do and they
19 get compensated for it.

20 Q. Let's look at paragraph 28.

21 MR. MOYE: Why don't we do
22 that now. Want to take a short --
23 why don't we take a short break so he
24 can switch cards.

25 THE WITNESS: Okay.

1 THE VIDEOGRAPHER: Okay.

2 Going off the record at 5:19.

3 (Whereupon, a recess is taken.)

4 THE VIDEOGRAPHER: Okay.

5 Back on the record at 5:35.

6 BY MR. MOYE:

7 Q. Professor Osler, do you know whether
8 Ripple in the past has paid market makers because
9 they bear the risk of holding XRP?

10 A. I do not know that.

11 Q. Let's look at paragraph 31 of your
12 rebuttal. If I'm understanding correctly, you
13 indicate that "exchange rates among fiat
14 currencies are highly volatile."

15 Do you see that?

16 A. I do.

17 Q. And you criticize Mr. [REDACTED] for what you
18 think is a misunderstanding about the average
19 change in certain prices between vehicle
20 currencies, is that correct?

21 MR. OPPENHEIMER: Objection
22 to form.

23 A. I -- I'm not sure that's how I would
24 articulate it at all.

25 Q. Okay. How would -- how would you

1 articulate what you're saying in paragraph 31?

2 A. I'll finish reading the paragraph and
3 then I'll provide a summary. All right.

4 (Pause)

5 A. So Mr. -- all right. If I...

6 Q. [REDACTED]

7 A. Yes, I'm -- I'm trying to -- Mr. [REDACTED]
8 yes. I'm trying to just reconstruct the line of
9 reasoning here.

10 So I'm saying that a fiat currency would
11 have volatility if it were used as a vehicle
12 currency as is true for XRP. And, in fact, the
13 dollar is used as the vehicle currency in the
14 world's foreign exchange market. It is -- it is
15 the dominant vehicle currency as I've discussed.
16 And dollar exchange rates are volatile, which
17 means that in the whatever seconds it is involved
18 in a conversion from yen to Phil -- to dollars and
19 dollars to Philippine pesos, whoever is doing the
20 conversion is exposed to risk.

21 Q. Okay.

22 A. So there's to be -- to summarize that,
23 there's no qualitative difference in that between
24 XRP and a fiat currency.

25 Q. Is it your understanding that one of the

1 main remittance corridors that was involved in
2 using the ODL was between United States and
3 Mexico? Is that consistent with your
4 understanding?

5 MR. OPPENHEIMER: Objection
6 to form.

7 You can answer.

8 A. I think I clarified earlier that I was
9 not aware of the balance of doll -- of remittance
10 flows within ODL.

11 Q. Were you aware that the corridor between
12 United States and Mexico was one of the corridors
13 where ODL was used?

14 MR. OPPENHEIMER: Objection.
15 You can answer.

16 A. I think I've answered that.

17 Q. Is that a yes?

18 A. It depends on how the question was
19 phrased.

20 Q. Let's repeat --

21 A. I have answered that I did -- was not
22 aware of the balance of where ODL -- of currency
23 pairs of remittance corridors where ODL was used.

24 Q. Okay. Well, please assume for this
25 question then that it is true that the remittance

1 corridor is between the United States and
2 Mexico -- sorry -- and ODL was used to make
3 currency transactions in that corridor. Okay?

4 A. Okay.

5 Q. Is there a vehicle corridor -- is there
6 a vehicle currency when trading between US dollars
7 and Mexican pesos?

8 A. No, there is not.

9 Q. How does the US dollar function in
10 trading between US dollars and Mexican pesos?

11 A. It functions as the beginning currency,
12 the sending currency, and -- yeah, it's the
13 sending currency and then Mexican pesos are the
14 receiving currency.

15 Q. Okay. For transactions from US dollar
16 to Mexican pesos, do you know how long US dollars
17 is being held?

18 MR. OPPENHEIMER: Objection.

19 You can answer.

20 A. If -- there's an apples-to-oranges
21 comparison here. The -- there's no vehicle
22 currency, so there no concept of holding the
23 dollars.

24 Q. So how about for a transaction that does
25 use a vehicle currency? Some Australian dollars

1 to US dollars to Philippine pesos.

2 Do you have any understanding of how
3 long the sender is exposed to price volatility of
4 US dollars?

5 A. In the wholesale foreign exchange
6 market, those transactions happen extremely
7 rapidly. Seconds.

8 Q. Is the sender exposed to price
9 volatility if it takes time to settle?

10 MR. OPPENHEIMER: Objection.

11 You can answer.

12 Q. I'm sorry.

13 Is the recipient exposed to price
14 volatility?

15 MR. OPPENHEIMER: Objection.

16 A. I -- I'm trying to understand your
17 question. Perhaps you can clarify the mechanism
18 you have in mind.

19 Q. Sure.

20 How much time does it take, as far as
21 you know, for a transaction to settle from
22 Australia to the Philippines?

23 A. Are we talking about settlement time or
24 trading time? Because these are different
25 concepts.

1 Q. Let's talk about settlement time.

2 A. Okay.

3 Q. Do you know how long that takes?

4 A. In the foreign exchange market, the
5 wholesale foreign exchange market, which are used
6 by banks and Western Union, it takes two days for
7 the majority of currency pairs to settle.

8 Q. During those two days, does the price at
9 which the transaction was executed change?

10 A. No, the trade has already happened, so
11 the price is all set.

12 Q. So does anyone bear the cost of the
13 longer settlement time in that transaction?

14 MR. OPPENHEIMER: Objection.

15 You can answer.

16 A. The cost is not well defined. Is there
17 a price change to worry about in the two days?
18 No, because the trade has been finalized and so
19 the price is -- no.

20 Q. Okay. Look at paragraph 33. It's a
21 long paragraph -- feel free to read it -- but I'm
22 going to ask you about the second-to-last sentence
23 in what you say Mr. [REDACTED] has failed to consider.

24 A. Okay.

25 (Pause)

1 A. Okay.

2 Q. All right. So in paragraph 33, you say
3 "Mr. [REDACTED] fails to consider the more logical
4 explanation, that Ripple's statements advanced the
5 goal of building Ripple's own network, as opposed
6 to generating interest among Mr. [REDACTED] so-called
7 'investment-oriented purchasers' of XRP."

8 Did I read that correctly?

9 A. You read that correctly.

10 Q. Okay. So I want to ask you -- you
11 understand that in the [REDACTED] report, he quoted
12 from a variety of statements and documents
13 originated by Ripple or its executives, correct?

14 THE REPORTER: I -- I can't
15 hear that. He quoted from a variety
16 of statements and documents...

17 Q. -- statements and documents that
18 originated with Ripple or its executives, correct?

19 A. He does.

20 Q. Okay. So I'd like to direct you to the
21 [REDACTED] -- initial [REDACTED] report, which is Exhibit 9.

22 A. Do we have that one already?

23 Q. You do.

24 A. Okay. And 3, 1.

25 Q. Look on your right.

1 A. Is it one of these perhaps?

2 Q. I think so.

3 A. It says [REDACTED] expert report. Yes.

4 Q. Okay. Please look at page 24 of the

5 [REDACTED] report. At the top -- this is within

6 paragraph 43. Mr. [REDACTED] says "Indeed, when the

7 escrow" -- this is the escrow of XRP -- "was

8 announced, Ripple CEO Brad Garlinghouse wrote

9 about how this would benefit 'investors.'"

10 Please read for the record -- and do it

11 reasonably slowly -- the quote from

12 Mr. Garlinghouse that's in Mr. [REDACTED] report.

13 A. "Today we are permanently removing" the

14 uncertainty -- "that uncertainty by committing to

15 place 55 billion XRP into a cryptographically

16 secured escrow account by the end of 2017. By

17 securing the lion's share of our XRP, investors

18 can now mathematically verify" that the -- "verify

19 the maximum supply of XRP that can enter the

20 market."

21 Q. What do you understand Mr. Garlinghouse

22 to be saying in that quote?

23 MR. OPPENHEIMER: Objection

24 to form.

25 A. I think consistent with what I said

1 earlier, he's removing uncertainty.

2 Q. For whom?

3 MR. OPPENHEIMER: Objection.

4 A. As I said earlier, he's removing it for
5 lots of people. He specifies investors, but he's
6 removing it for anyone interested in XRP for any
7 purpose.

8 Q. Okay. So that's your understanding.
9 But do you attribute any -- any significance to
10 his use of the term "investors"?

11 MR. OPPENHEIMER: Objection.

12 A. I -- no.

13 Q. In other words, why are you reading it
14 more broadly than the term "investors" that he
15 used here?

16 MR. OPPENHEIMER: Objection
17 to form.

18 A. He -- okay. He specifies investors?

19 Q. He does.

20 A. I do not attribute significance to it.
21 I -- my own interpretation is, as I said earlier,
22 he removed uncertainty for anyone interested in
23 XRP one way or the other.

24 Q. Okay. So thank you for clarifying that
25 and I think we've established that.

1 My question is why. Why didn't you
2 attribute any significance to the word
3 "investors" in your understanding of this quote?

4 MR. OPPENHEIMER: Objection.

5 A. I -- I have not been asked to opine on
6 Mr. Garlinghouse's mind and I have no opinions
7 about it.

8 Q. But you did opine on whether Mr. [REDACTED]
9 was correctly interpreting Mr. Garlinghouse's
10 statement, did you not?

11 MR. OPPENHEIMER: Objection;
12 mischaracterizes the report.

13 A. I believe --

14 Q. Let me rephrase that question.

15 You did think that Mr. [REDACTED] was
16 incorrect in the statements and documents that he
17 quoted from in his report and -- and you disagree
18 with him that those statements would be understood
19 as benefiting chiefly investments, is that fair?

20 MR. OPPENHEIMER: Objection;
21 mischaracterizes.

22 You can answer.

23 A. My opinion as stated in this rebuttal
24 report is that Mr. [REDACTED] characterization of
25 Ripple's strategic behavior is not necessarily

1 supported by the quotation he provides. And that
2 the -- there's such a strong, very strong,
3 economic rationale for what Ripple has done along
4 the way, that that would be the logical place to
5 start. There's something known as Occam's razor,
6 which is stick to this straightforward solution.
7 It's probably the right one.

8 Q. Okay. Let me return to something I
9 think you said earlier when you read the quote
10 from Garlinghouse. And I'm going to give you the
11 chance to tell me if I got this wrong.

12 But did you say that he was trying to
13 reduce or eliminate uncertainty in the XRP market?
14 Is that a term you used?

15 MR. OPPENHEIMER: Objection.

16 A. I used -- I did say reduce uncertainty.
17 I don't remember the rest of exactly what I said.

18 Q. Okay. Do you believe he was trying to
19 reduce uncertainty in the XRP market?

20 MR. OPPENHEIMER: Objection

21 to form.

22 A. Again, I am not here to opine on what
23 Mr. Garlinghouse is thinking.

24 Q. Do you have an understanding of who
25 would have been in the market to purchase XRP back

1 at the end of 2017?

2 A. Not precisely.

3 Q. All right. Just one of the exhibits we
4 previously marked. If you could please look at
5 Exhibit 6, the rebuttal report of [REDACTED]

6 A. All right.

7 MR. OPPENHEIMER: I'm sorry,
8 I'm having an issue with the real
9 time. Can we pause for a second? We
10 don't have to go off the record.

11 MR. MOYE: As long as it
12 doesn't hurt my time, sure.

13 MR. OPPENHEIMER: I'll give
14 you back the minute if you need it.

15 MR. MOYE: Thank you.

16 (Pause)

17 BY MR. MOYE:

18 Q. All right. Please open the [REDACTED]
19 rebuttal report to pages 8 and 9. Eight first and
20 then we'll look at 9. I'm going to ask you a
21 series of questions that are either quotes from or
22 paraphrased from Mr. [REDACTED] report. I don't
23 want to hide what I'm doing. It's in -- it's
24 going to be in paragraphs B, C, and D on page 8
25 and then we'll look at a couple on page 9. I'm

1 just going to ask you whether you agree or
2 disagree with the statement I'm reading. Okay?
3 And we're going to go through several.

4 First statement. Do you agree that "XRP
5 is not a commonly accepted medium of exchange for
6 the purpose of goods or services nor in processing
7 payments for goods"?

8 MR. OPPENHEIMER: Objection.

9 You can answer.

10 A. I had clarified earlier that "commonly
11 accepted" has no definition in the literature, so
12 I couldn't say.

13 Q. Do you agree that "None of the largest
14 retailers in the U.S. nor the major payment
15 processors accept XRP as a medium of exchange"?

16 MR. OPPENHEIMER: Objection.

17 A. I would note that none of the largest
18 retailers in the U.S. nor the major payment
19 processors -- well, I couldn't know about that --
20 have accepted euros as a medium of exchange
21 either.

22 Q. Can you an -- can you answer the
23 question?

24 A. I would like --

25 Q. Do you agree --

1 A. -- to highlight that focusing on the
2 U.S. as a benchmark for "commonly accepted," the
3 term is not defined and the United States is
4 certainly not the definition.

5 Q. All right. Are you unwilling to answer
6 the question I asked of whether --

7 MS. PROSTKO: Objection.

8 Q. -- whether you agree that none of the
9 largest retailers in the U.S. nor the major
10 payment processors accept XRP as a medium of
11 exchange?

12 MR. OPPENHEIMER: Objection
13 to the form.

14 A. I think I've made clear that the
15 statement is irrelevant.

16 Q. So is that a no? You're not willing to
17 answer the question?

18 MR. OPPENHEIMER: Objection.

19 A. I think that's putting words in my
20 mouth. I said the statement is irrelevant.

21 Q. Well, Professor Osler, you probably
22 think most of my questions today were irrelevant.
23 Yet you were a very good sport and you answered
24 nearly all of them. We're really close to the end
25 here. I can keep repeating, but I just -- a

1 yes-or-no answer would help us get through this.

2 Do you agree or disagree that none of
3 the largest retailers in the U.S. nor the major
4 payment processors accept XRP as a medium of
5 exchange?

6 MR. OPPENHEIMER: Objection;
7 asked and answered.

8 A. Noting that the matter is irrelevant to
9 the nature of XRP one way or the other, I will say
10 I agree with that.

11 Q. Okay. And that can be a standing
12 objection for these questions if that would be
13 helpful to you. I'm happy to make that part of
14 the record.

15 Do you agree, Professor Osler, that "XRP
16 is not generally used to quote the prices and
17 values of goods and services"?

18 MR. OPPENHEIMER: Objection.

19 A. I have the same objection right from the
20 start. "Generally accepted" is, first of all, not
21 unanimously -- not defined. So the questions here
22 are not relevant to whether XRP does or does not
23 function, have these functions. And I -- so I
24 disagree that the definition that it is required
25 or that I disagree that there's any definition to

1 "generally accepted."

2 And I -- so I -- anyhow, these -- these
3 matters here, I disagree with fundamentally the
4 premise.

5 Q. Do you agree that "XRP is not used
6 frequently or regularly to quote the" price of --
7 "prices and values of goods and services"?

8 MR. OPPENHEIMER: Objection
9 to form.

10 A. That is still undefined and it is still
11 not relevant to the definition or the nature of a
12 currency. As I've said, the -- the currency of
13 the Seychelles, the Seychelles rupee, is a
14 currency and there's less than a million people
15 there. So this notion of generally accepted and
16 that it has to be based on the United States for
17 some reason has no foundation conceptually.

18 So it's -- it's just difficult for me to
19 make head or tail of why this is here.

20 Q. Well, again, whether or not you think
21 it's relevant, are you able to answer whether you
22 agree or disagree whether XRP is frequently or
23 regularly used to quote the prices and values of
24 goods and services?

25 A. I cannot say because "frequently" is not

1 defined.

2 Q. Okay. Can you say one way or the other
3 whether XRP is used in financial reporting?

4 A. I couldn't say.

5 Q. Can you say one way or the other
6 whether, in Ripple's own quarterly XRP market
7 reports, the amount of XRP that Ripple sells each
8 quarter is quoted in US dollars, not in XRP?

9 MR. OPPENHEIMER: Objection.

10 A. I couldn't say that one way or the
11 other.

12 Q. Have you seen any of Ripple's --

13 A. I have looked at them.

14 Q. -- XRP market reports?

15 A. To say that it does not function some --
16 as something here does not imply that XRP does not
17 serve that function somewhere else. So I have
18 highlighted that XRP serves as a unit of account
19 in the medium of exchange function that it serves
20 in the payment service it provides, which is the
21 goal of Ripple in terms of where it wants to head
22 as a business model.

23 Q. Professor Osler, do you agree or
24 disagree that XRP is at least 11 times more
25 volatile -- that the price of XRP is at least 11

1 times more volatile than any of the top ten most
2 traded fiat currencies in the world?

3 MR. OPPENHEIMER: Objection.

4 A. My own numbers don't go there to a
5 number 11 or more, though I haven't particularly
6 studied it.

7 Q. So does that mean you don't know or you
8 disagree?

9 A. That means I couldn't say specifically.

10 Q. Okay. Let's turn over to page 9. These
11 questions will be similar and they'll be drawn or
12 paraphrased from --

13 A. If I could flush out my answer to that.

14 Q. You may.

15 A. As I highlighted earlier today, the --
16 the standard deviation of XRP prices in that
17 academic article which implies a .1 percent
18 volatility at the one-minute horizon is five times
19 the volatility of a dollar or euro at the
20 one-minute horizon that I calculated.

21 So the number 11, it could well be
22 lower; it could be higher. I -- my own evidence
23 does not suggest that 11 is -- is -- suggests that
24 11 is probably high.

25 Q. All right. I don't want to mislead you.

1 He was -- Professor [REDACTED] was not looking at the
2 chart that I showed you earlier today. I believe
3 he's referring to the chart on page 18 of this
4 report. You are free to look at that if it helps
5 you.

6 A. Okay. Well, this is daily to start
7 with. And my numbers were for the one-minute
8 horizon.

9 Q. Right.

10 A. So there's all this -- and -- and,
11 again, daily is not relevant for the cross
12 currency -- the remittance nondollar crosses that
13 Ripple is focused on.

14 Q. So, again, is it that you disagree with
15 him with the statement I read to you or that you
16 can't say whether the statement is correct?

17 MR. OPPENHEIMER: Objection;
18 asked and answered.

19 A. I would say that the data he provides
20 are -- I would say there's a lot of ways to
21 measure it. Okay? And this is one of them.

22 Q. Okay. Let's go over to page 9,
23 paragraph F., right after the first mention of the
24 bolivar.

25 Here's the question: Do you agree that

1 XRP is not designated legal tender nor government
2 backed, like traditional fiat currencies?

3 A. I'm sorry, which statement within the
4 paragraph?

5 Q. It's in the middle, starts "In
6 contrast..."

7 A. Uh-huh. I do not disagree with that.

8 Q. Here's the next statement.

9 Do you agree that XRP -- that because
10 XRP is not a fiat or government-backed currency --
11 I'm sorry, let me scratch that.

12 Do you agree that because XRP is not
13 designated as legal tender, that it is not
14 required to be accepted as a medium of exchange?

15 MR. OPPENHEIMER: Objection
16 to form.

17 A. Let me just think a little more. This
18 is legal stuff and I feel like I'm out of my depth
19 with legal -- you know --

20 Q. That's a fair caveat. I'm not asking
21 for a legal explanation. Simply as an economist.

22 Do you believe that someone could hold
23 XRP, bring them to a transaction, and say you
24 really must accept this XRP in payment because I
25 really want you to?

1 MR. OPPENHEIMER: Objection.

2 Q. Do you think you could compel someone to
3 accept XRP in payment?

4 MR. OPPENHEIMER: Objection
5 to form.

6 A. In general, one of the attractive things
7 about cryptocurrencies is that they are used
8 voluntarily.

9 Q. Okay. So do you agree or disagree that
10 Venezuelans today commonly transact goods in more
11 stable currencies than the bolivar like the US
12 dollar?

13 A. I actually don't know.

14 Q. Okay. And do you agree or disagree that
15 in 2020, the country of Venezuela actually
16 legalized US dollar-based transactions?

17 MR. OPPENHEIMER: Objection.

18 You can answer.

19 A. I was not aware of it. Venezuela is --
20 Venez -- using Venezuela misses the point. There
21 are extremely volatile currencies such as the
22 Turkish lira. In the 1990s, the Turkish lira was
23 depreciating at 40 to 80 percent per year and it
24 continued to be used. So substantial volatility
25 in the value of a currency is consistent with it

1 being used as a currency.

2 Q. All right. Let's go to page 15. And,
3 again, you can dis -- you can agree, you can
4 disagree, you can say you don't know or I suppose
5 you could object to my question.

6 But the question is, which is drawn from
7 paragraph 20, do you agree that XRP is not
8 commonly accepted as a medium of exchange by major
9 credit card processors like Visa, MasterCard,
10 American Express, et cetera?

11 MR. OPPENHEIMER: Objection.

12 A. I see that it's written here and I can't
13 say that I looked at it directly myself.

14 Q. So you don't know?

15 A. So I am not aware one way or the other.

16 Q. Okay. And turning over to page 18 to
17 the figure, the diagram that I -- I'm sorry, the
18 chart that I referred you to before.

19 A. Uh-huh.

20 Q. Do you see that Professor [REDACTED] has
21 constructed a graph showing daily return of
22 volatility between August 6th, 2013 and December
23 22nd, 2020, for a variety of fiat currencies
24 versus XRP.

25 Do you see that?

1 A. I do.

2 Q. Okay. As an economist, if you had the
3 appropriate data set, could you have created your
4 own chart showing the volatility of XRP against
5 other currencies for different periods of time?

6 A. Absolutely.

7 Q. Okay.

8 MR. MOYE: Let me consult
9 with my colleague for a moment and
10 that may be all the questions that I
11 have for you.

12 THE VIDEOGRAPHER: All
13 right. Going off the record at 6:03.

14 (Pause)

15 THE VIDEOGRAPHER: Okay.
16 Back on the record, 6:05.

17 MR. MOYE: Thank you,
18 Professor Osler. Those are all the
19 questions I have for you today.

20 THE WITNESS: Okay. Thank
21 you.

22 CROSS-EXAMINATION

23 BY MR. OPPENHEIMER:

24 Q. Professor Osler, I have just a few
25 questions for you. You were asked some questions

1 about the materials cited in your port -- in your
2 report and said -- I'll paraphrase a bit -- but
3 essentially you included the materials that were
4 critical to your opinion.

5 Do you recall that testimony?

6 A. I do. That was -- that was way at the
7 beginning of the day, but, yes.

8 Q. Can you explain what you meant by
9 materials that were critical to your opinion?

10 A. This is the information that -- it was
11 an important fact that I used or it provided an
12 important perspective that I used. So I
13 considered it and I -- that it frame -- helped
14 frame the opinion. It helped shape the opinion
15 that I actually have.

16 Q. Are there any materials that helped
17 shape your opinions that were not listed in the
18 report?

19 A. I think we went -- found one place where
20 I didn't cite something on a -- on a small item
21 and, otherwise, I was doing my best to cite
22 everything.

23 Q. So aside from that one instance, you're
24 not aware of any places where there is material
25 that influenced your opinion that was not cited in

1 the report, is that correct?

2 A. Correct.

3 Q. Okay. You were asked some questions
4 about whether you had made efforts to essentially
5 calculate what the costs of ODL transactions are.

6 Do you recall that set of questions?

7 A. I -- I recall that there was such a set,
8 yes.

9 Q. Can you briefly summarize what your
10 opinion about the cost of ODL is in this case?

11 A. Could you be more specific?

12 Q. Are you offering an opinion about the
13 actual costs that have been historically paid by
14 users of ODL?

15 A. No.

16 Q. Are you offering an opinion based on the
17 economic theory behind the ODL product?

18 A. Yes. I'm offering an opinion based on
19 the product properties of the ODL product.

20 Q. Can you explain what types of costs are
21 typically present in a traditional cross-border
22 payment transaction? Just the -- the categories
23 of costs.

24 A. There are basic fees that the center
25 pays to whatever the remittance service provider

1 is. And then there is the exchange, the currency
2 exchange process that involves different exchange
3 rates and it's different for that -- the paying of
4 the bid versus the ask.

5 And then there are sometimes exchange
6 fees. If you're going through a -- through a
7 bank, there are no exchange fees, so that would
8 not be -- that would not be relevant in that
9 context. There would just be the -- the upfront
10 fees.

11 Plus the bid/ask spread or spreads if
12 it's going through a -- the dollars vehicle
13 currency or a vehicle currency.

14 And then there would be sender fees as
15 well. And exactly the balance of those varies
16 quite widely from what I understand.

17 And so -- and then there's the
18 transaction fee that can be -- and then there's
19 the transaction fee.

20 Q. So if I could summarize or if you could
21 tell me if I have this list right.

22 A. Uh-huh.

23 Q. You mentioned fees to the provider,
24 exchange fees, bid/ask spreads, sender fees, and
25 the transaction fee?

1 A. Uh-huh.

2 Q. Is that correct?

3 A. Yeah.

4 Q. And --

5 A. Well, so those are those costs. And
6 then there's the time, which is huge. The -- the
7 time for bank transactions -- well, the time in
8 general is huge and this why the World Bank
9 considers a five-day receipt to be relatively
10 fast. Five days is considered by the World Bank
11 to be relatively fast. So just putting it out
12 there.

13 The -- the time of these transactions,
14 which for banks can go up to ten days sometimes,
15 is substantial and costly.

16 Q. So let me go through those categories
17 now with respect to ODL.

18 Would ODL also have an -- a -- a bid/ask
19 spread?

20 A. Yes.

21 MR. MOYE: Objection;
22 foundation.

23 Q. Would ODL potentially face exchange
24 fees?

25 MR. MOYE: Objection;

1 foundation.

2 A. I'm not certain about that because I
3 don't think of ODL as an exchange.

4 Q. So it may or may not?

5 A. It may or may not.

6 Q. Does ODL have to involve sender fees?

7 MR. MOYE: Objection;

8 foundation.

9 A. The RSP, the remittance service
10 provider, charges those.

11 Q. So would you expect to see them in an
12 ODL transaction?

13 A. Yes. So those would be the same.

14 Q. And what about a transaction fee?

15 A. The transaction fee for ODL is trivially
16 small and the time is very short.

17 Q. And what about fees to the remittance
18 service provider? Would any be required for an
19 ODL transaction?

20 A. You mean for the person bringing the
21 funds in?

22 Q. I think one of the categories you
23 mentioned was fees to the provider.

24 A. So I guess there's -- what I meant was
25 there's the person coming in who pays a fee and

1 there's the person who takes the money out who
2 pays the fee and that's where the balance of those
3 fees varies.

4 Q. I see.

5 Can we call those sender and recipient
6 fees?

7 A. Yes.

8 Q. Okay. I think we covered sender fees in
9 the context of ODL.

10 A. Uh-huh.

11 Q. Would there necessarily be recipient
12 fees in the context of ODL?

13 MR. MOYE: Objection;
14 foundation.

15 A. Those are paid to the -- the recipi --
16 remittance service provider.

17 THE REPORTER: Repeat.

18 THE WITNESS: Me or him?

19 THE REPORTER: You.

20 THE WITNESS: Me.

21 A. The -- whatever we were talking about.

22 Q. Provider fees.

23 A. The -- the sender and recipient fees are
24 both paid to the remittance service providers.

25 Q. So as a matter of economic theory, is

1 the -- what -- what are the differences between
2 the various fees for ODL transactions compared to
3 traditional cross-border payment transactions?

4 A. So the remittance service provider fees
5 at both ends will still happen. Bid/ask spread
6 still happens. And then the transaction fees are
7 lower. And I believe on -- I have not read
8 anywhere about there being an ODL exchange fee.
9 So that is -- that's all I can say. I believe
10 that's not there, but I wouldn't know for sure.

11 And then the speed is much, much faster.
12 The actual funds move in three to five seconds as
13 opposed to, in a wholesale foreign exchange
14 transaction, it's two days settlement, and then
15 for remittance transactions through banks, as
16 we've discussed, it's anywhere from a few days to
17 ten days. And, in general, five days is
18 considered fast.

19 MR. OPPENHEIMER: All right.

20 I think -- no further questions at
21 this time.

22 MR. MOYE: I have no
23 questions.

24 THE VIDEOGRAPHER: All
25 right. So this concludes the video

1 deposition of Professor Carol Osler.

2 The time is 6:14 and we're going off
3 the record.

4 (Whereupon, the deposition
5 concluded at 6:14 p.m.)
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1 STATE OF NEW YORK)

2) ss:

3 COUNTY OF NEW YORK)

4 I hereby certify that the witness in the
5 foregoing deposition, CAROL L. OSLER, Ph.D. was by me
6 duly sworn to testify to the truth, the whole truth and
7 nothing but the truth, in the within-entitled cause; that
8 said deposition was taken at the time and place herein
9 named; and that the deposition is a true record of the
10 witness's testimony as reported by me, a duly certified
11 shorthand reporter and a disinterested person, and was
12 thereafter transcribed into typewriting by computer.

13 I further certify that I am not interested in
14 the outcome of the said action, nor connected with nor
15 related to any of the parties in said action, nor to
16 their respective counsel.

17 IN WITNESS WHEREOF, I have hereunto set my hand
18 this 23rd day of December, 2021.

19 Reading and Signing was:

20 ___ requested ___ waived _X_ not requested.

21
22
23 _____
24 BRIDGET LOMBARDOZZI, CSR, RMR, CRR
25

Transcript Word Index

[& - 264]

&	11 (cont.)	175	202.326.7999
&	97:18 232:7,10,14,24	6:19	4:23
2:17 4:3,16 5:5,14 10:21	233:11 240:19 278:19,22	18	2020
0	281:11 283:19,20 330:24	23:24 149:4 150:15 162:14	165:10 207:12 334:15
002	330:25 331:5,21,23,24	213:15 224:9 293:23	335:23
233:6 234:2	11,000	297:18,20,21 332:3 335:16	2021
0083	304:16	19	1:17 2:19 10:3,8 31:17 32:1
130:16	11:08	20:21 209:14 213:16	33:4,13 49:9 54:2 115:9,18
1	102:9	295:17 297:13,18 298:14	117:6,24 164:18,22 165:9
1	11:19	1980	206:11 238:20 260:11
6:10 14:4,7,11,13 20:24	102:12	15:16	288:8,16 289:18 345:18
34:19 58:1 59:21 68:14	11-12-21	1983	21
69:15 73:24 74:4,5,6,11	7:5,14	16:3	1:17 2:19 10:3 285:7 299:3
88:25 128:5 132:12 191:2	11-16-21	1985	303:11,12
192:14 219:19 226:9 238:5	7:10	17:15	211221blo
287:15 289:10,14 310:11	11-18-21	1987	1:25
320:24 331:17	8:9	16:13	212.225.2951
1/100th	12	1990	5:9
310:11	8:9 102:1 106:7,24 254:7	18:7,11	212.336.0153
1/10th	254:13,22,23 260:11	1990s	3:15
202:6	12/13	18:21 334:22	212.373.3067
1/57,000	6:20	1991	5:18
233:22 234:1	12:29	17:15	212.909.6000
1:23	159:8	1993	4:9
160:3	1285	19:25	21st
1:46	5:16	1996	10:8 288:8,16 289:18 292:2
226:10	13	19:25	22
10	6:25 8:16 9:6,12 111:14,16	2	232:24 305:9
7:21 202:6 223:25 224:3,4	113:1 186:18 190:6 197:20	2	223
224:7 225:2,15 274:6,10	206:5 254:10,15 258:11,12	6:14 31:2,17 34:20 59:24	7:21
276:7 307:7,12,17	307:4	78:5,6 174:7,14,16,18	22nd
10.7	14	179:8 180:1,5,7,10 185:17	335:23
216:2	6:10 127:16,17 128:8	238:4 265:8 287:7	232
10:06	129:14	2:27	8:4
65:17	149	213:7	237
10:21	7:11	2:46	6:23
65:20	14th	213:10	23rd
100	238:19	20	345:18
167:15 169:15 170:18	15	1:6 2:6 7:15 10:13 192:16	24
221:24 266:17 267:3,9	335:2	335:7	321:4
268:8 274:11	154	200	242
10006	304:14	3:12 218:18 219:11	9:6
5:8	16	20036	25
10019-6064	6:21 141:10 149:20,22	4:22	117:25 118:8,14 120:23
5:17	204:17 285:25	2012	307:3,4
10022	1615	174:21	254
4:8	4:20	2013	8:9,16
10281-1022	163	31:24 32:1 33:3,13 176:4	260
3:14	9:5	179:5 191:2,2,4 335:22	7:4
10-4-21	17	2017	261
6:11 7:18	9:12 23:25 145:5,11 204:17	36:20 77:6 321:16 325:1	9:7
10832	285:9,10,25	2018	263
1:6 2:6 10:13	174	133:24 209:13	7:8
11	6:14	2019	264
6:4 8:4 34:25 88:17 90:5		209:12,17 210:4 211:6	7:13

[27 - account]

27	5	8	absolutely (cont.)
295:19 296:5 297:1,8 309:8 309:23	5 6:23 8:7 32:17 102:2 106:7 111:16 237:18,25 238:3,11 239:1,3 274:7	8 7:13,23 76:8 162:13 186:14 217:18 264:18,22,24 325:19,24	336:6 academ 33:11 academic 15:8 32:2,3 33:6 47:14 64:2 70:12,18 76:2,4,5 78:12,14 78:15,16,20,24,25 79:2,25 95:15 99:23 100:4,25 110:13 170:23 176:17 183:17 195:14 280:21 309:3,6 331:17
28 295:25 313:20	5:19 314:2	80 232:25 334:23	academics 63:18,21 64:14 73:4 74:17 74:21 78:22,23 82:23 83:8 99:22 101:10 109:20 112:10,15 194:8,20 196:4 196:15,22
29 197:21,22 202:15,24,25 206:2 295:25	5:35 314:5	86 16:14	accept 39:19 41:20 91:9 93:1,2,10 93:11 95:10 97:23 98:10 99:5 139:1 172:10,11,15 326:15 327:10 328:4 333:24 334:3
296 7:17	50 7:19 246:13 249:8,18,24 250:6,23 251:2	87 16:14,15	acceptable 13:23 152:9,10
29th 191:2	54 202:4,16 203:13,16 214:23	8-9-12 6:16	acceptance 58:8 81:16,22 90:10 95:16 100:1 101:2,6 106:4 110:6
3	540 207:14	9 7:17 266:13 285:9 296:15 296:22 320:21 325:19,20 325:25 331:10 332:22	accepted 39:20 40:11,24 41:1,14 87:11,16 90:23 94:2,13 95:21 98:23,25,25 99:14,18 100:15 101:21 137:19 138:18 152:13 172:1,7 326:5,11,20 327:2 328:20 329:1,15 333:14 335:8
3 6:19 8:14 9:7 31:4 59:15 68:20 175:19,21 176:1 186:18 190:5,12 193:8 197:17 265:9 320:24	55 321:15	9:07 2:18 10:2,7	accepting 94:5 95:18 96:10,24 100:8
3:53 259:22	57,000 233:22	90,000 51:4,11,15 52:15	access 53:18 208:1
31 314:11 315:1	6 7:4 127:15 260:3,6,9,12,15 260:19,24 266:13,14 269:9 274:8,9,9 279:18 325:5	90,000 96:10	accessed 165:18
3-14-21 6:24	6.7 207:16	91 17:16	accessible 110:2,5 141:22
33 319:20 320:2	6:03 336:13	919 2:17 4:7 10:21	account 102:18 104:5,10,22 105:5 106:3,8 107:3,12 112:25 113:23 115:1,16 160:13 161:1 172:24 173:4,15 180:13 182:1,9,18 229:24 321:16 330:18
336 6:5	6:05 336:16	93 19:9,22	
35 26:4 207:12	6:14 2:18 344:2,5	96 19:9,22	
39 204:16 205:1,6,13	600 50:16	9th 174:21	
4	65.1 310:13	a	
4 6:17 8:18 31:4 32:13,16 73:25 74:1,2,5,6	68 212:21 224:10,22	a.m. 2:18 10:2,7	
4:12 259:25	69 246:10	abbe 79:12	
40 240:19,23 334:23	6th 335:22	abc 138:24 139:2	
400 3:13 4:21 115:23	7 7:8 106:25 107:25 186:10 186:14,23 263:11,15	ability 149:17 150:7,9,12	
41 6:12	73 7:6	able 28:21 30:24 121:14,17 137:2 139:2,12 150:22 179:12,22 180:4 189:19 233:10,17 258:17 261:8 268:17 329:21	
416 121:1	75 121:5	absence 285:11	
42 198:24 209:7 242:17	78 203:14	absolute 208:15,16 218:20,22	
43 321:6	7-8-20 8:6	absolutely 28:17 78:4 86:24 110:16,21	
44 212:9,16 213:13 224:21 225:12			
4th 14:17 49:21			

[accounts - answered]

accounts 115:13,16 116:25 274:13	administrative 33:16	allowed 212:25 273:1	answer 9:3 12:8,13,21 13:11 16:23
accurate 204:6	advanced 126:16 320:4	allows 198:10 255:21 256:25	16:25 21:11,23 22:13 23:7
accurately 29:6 190:11	advantages 253:19	276:19	23:19 24:5 25:19 27:7,11
achieve 103:3,4 119:6	adverse 24:15 26:15,20,24 27:3	alternative 164:23	27:18,19,21 28:10,19 29:2
achieved 81:23 289:12	29:11 30:2	ambiguous 99:10 139:22 148:19	29:18 30:7,14,18,22 35:20
achieving 234:17 289:10	adversely 29:4	291:10 308:14	36:11 37:11,20 39:5,8,23
acknowledge 243:17	advisors 38:3	amended 7:8 55:9,10 263:16,18,25	40:16 41:6,24 42:8,17
acquire 222:2	affect 278:25 283:22	296:12	43:11 44:4,15,16,18 45:17
act 253:15	africa 146:10	american 95:1 335:10	46:19 47:11 48:5,11 49:17
acted 35:11	aged 109:22	americas 5:16	51:2,9,17 52:10,18 54:5,25
acting 35:24 290:9	ago 117:24 119:12 156:22	amount 219:10 253:6 271:20	56:8 57:1,12,23 58:19 59:3
action 41:14 345:14,15	202:10	273:12,16,21 277:14 282:6	59:14 60:12,25 61:14 62:11
actions 283:25	agree 41:18 52:12 82:15 90:9,18	283:21,25 284:2 286:25	62:24 63:1,2,5,17 64:13
active 25:25 26:1 304:3,7,14	105:19 146:17 149:5,12	291:6,19 293:4 300:9 302:2	65:7 66:21 68:12,25 69:8
actively 36:24 304:17	162:4 164:3 169:22 170:5	303:1 305:7 310:18 330:7	69:18 70:8 71:5,12,15,20
activities 43:16	171:13 180:20 181:4 182:3	amounts 117:5 305:10	72:5,18,25 73:11,20 75:25
acts 290:11	183:12 184:4 187:6,16	anal 281:5	76:1,19 78:1 79:8,23 80:4
actual 68:5 120:25 216:4,5 310:15	188:20 190:1,3,4,13 195:12	analogize 270:22	81:21 83:4 84:1 88:12 89:6
338:13 343:12	195:15 220:2 226:4 231:9	analogous 290:9 292:10,16	89:16,21 92:13,16 98:15
add 12:25 143:8 144:19 145:18	295:13 326:1,4,13,25 327:8	analogy 290:5	99:11 105:11,24 108:5
193:9	328:2,10,15 329:5,22	analyses 281:4,5	109:10,25 110:9 111:13
added 302:1	330:23 332:25 333:9,12	analysis 21:1 143:9,12 144:20	113:9,16,20 116:19 117:8
adding 144:25	334:9,14 335:3,7	145:18 181:8 184:6 211:8	118:5 122:14 123:7,18
addition 196:17	agreed 146:18,19 231:16	269:20 295:20 298:16,17	125:8 126:4,21 127:12
additional 22:9 90:17 167:16 188:18	agreement 246:23 247:1,5,7,9,19	298:19,22 299:2 301:3	128:17 130:12 133:11
223:10 245:15 250:4	248:1,3	305:4	134:16 135:9,20 139:23
address 69:2 184:9,10,11,13	agreements 240:8	analyze 198:19	140:14,24 141:2,3,9 145:21
addressed 69:22 113:11 136:19 197:4	ah 265:11	analyzing 194:8,21 195:14 253:15	149:16 151:3,4,5,23 154:9
addresses 69:20	ahahn 4:11	angelilli 6:24 238:19,21	155:11,19 156:1,10 157:6
	ahead 12:13,21 64:23 205:10	angelilli's 239:24 240:13 241:6	158:24 161:19 163:3
	244:11 262:25 265:10	announced 284:14 321:8	164:13 167:8 169:8 171:14
	285:8 291:13	announcements 249:5	172:18 175:8 179:12,22
	al 10:12	annualized 310:13	181:7,10,18 182:7,21 185:7
	algorithm 235:2		186:4 187:10,23 190:8
	allow 255:8 256:1 261:19 293:15		192:21 194:2 199:6 206:8
			223:5 228:18 229:7,20
			231:14 234:10 240:16
			242:13 243:6 244:9,24
			256:21 257:13 261:4,19
			262:3,22 264:13 265:6
			266:9 271:5 274:1 275:2,19
			276:13,24 277:17 278:15
			280:16 281:8,17 282:14
			284:9,22 287:22 289:23,25
			291:12 292:13,21 296:16
			297:16 300:6 302:11,20
			303:4 304:10 306:4,9 308:3
			308:12,24 316:7,15 317:19
			318:11 319:15 323:22
			326:9,22 327:5,17 328:1
			329:21 331:13 334:18
			answered 72:17 73:19 86:10 95:14
			147:18 186:3 240:15
			243:23 277:24 289:22

[answered - attribute]

answered (cont.) 291:11 305:2 316:16,21 327:23 328:7 332:18	appropriate 71:5 135:10 192:9 336:3	aside (cont.) 259:18 264:15 337:23	assignment 22:3 59:16 265:3,6
answering 59:19 62:20 86:21 292:15	approximately 10:7 47:1 49:11 50:22	asked 19:23 29:3 53:10 59:13,19 61:4 66:8 68:14 69:19,24 70:1,20,22 72:17 73:19 86:10 88:14 147:2,4 155:1 184:10,11,13 186:3 197:3 240:15 256:12 260:23 261:9 265:2,13,20,21 268:15 277:23 289:22 291:11 305:2,18 323:5 327:6 328:7 332:18 336:25 338:3	assist 296:16
answers 12:9,25 193:9 250:24 293:13	arcane 85:4,6,22 183:17		assistance 53:1
anthropological 77:8	area 18:16 30:25 265:15		assistant 18:6
anthropologist 77:7	areas 77:22 85:3 266:7		associated 68:18 73:5 119:20 176:11 200:10 216:8 221:13 222:13,23 227:21 231:10 241:13 244:16
anthropologists 77:18	argue 180:12		association 10:18 176:15,19 200:24
anthropology 77:14	argues 309:9	asking 11:17 20:7 38:11,16 40:9 43:17 71:6 84:23 86:2 92:20 121:19,20 130:18 144:18 151:15 154:14 157:20 160:8 162:15 169:13,22 171:14 172:13 199:2 231:19 241:18 242:7 242:8 245:12 256:22 272:11 283:24 289:14 299:25 333:20	assume 94:25 96:21 104:2 156:15 163:25 189:16 195:10 248:13 249:9 255:17 256:12 259:7 316:24
anticipated 20:12 183:22	arguing 297:8		assumed 76:8,14 109:18 129:8 130:3
anybody 82:22	argument 309:12		assumes 139:19 291:9
apart 208:7	argumentative 60:23		assuming 123:2 190:9 208:17 301:6 311:17,22 312:3
apologies 282:25	arranged 107:9,10		assumption 281:10 306:5
apologize 53:14 88:22 174:11 194:19 233:16 285:22 305:17 308:5	arrangement 259:11		assumptions 255:23
app 255:13,13,20	arrive 64:17	asks 68:15	asymmetric 26:8,21
appearances 11:10	arrived 18:22	aspect 80:2,9 83:22 84:13 153:14	asymmetry 27:3
appears 191:17 198:25 225:18 238:3 258:2 308:15	art 146:9,18,19,22	asserted 231:17	attempt 112:22 210:22
apples 215:16,16 317:20	article 6:16,20 8:9 31:17 79:25 94:22 144:16 178:12,21 179:5 192:8 193:8,11,20 199:8,10 233:4 257:17 258:16,20 331:17	asserting 287:9	attempted 196:16
applicable 280:23	articles 47:14 64:2,3 193:18 194:4 194:7,13,14,20	assertion 77:2 166:25 211:2 285:13 294:4 295:18 296:4 297:2,4 297:7 299:12	attempting 196:13
application 278:25	articulate 314:24 315:1	asserts 266:15 267:1 299:22	attention 14:24 128:8 179:9 186:22 213:13 266:12
applied 21:1 171:16	articulated 80:11,15 262:10	assess 183:20	attorney 62:9,12 63:3,15 70:25 71:16 163:14 201:5
applies 39:11 269:5,5	articulating 278:7	asset 26:7 59:22 67:17,21 82:17 82:18 92:8 93:11 95:8 97:2 97:22 98:22,24 99:5 105:3 122:12,17,24 127:7,21 129:3 143:13 148:22 149:17 150:8,9,12 226:25 267:20 268:8	attorneys 11:12 54:15 55:23 56:4
apply 259:6,7 281:13 299:1	articulation 279:5		attract 210:19
applying 280:22	artwork 146:13,23	assets 128:3 226:22	attractive 334:6
appreciate 28:23 196:11 277:15 313:4	ashley 4:5	assign 93:24	attribute 80:20 83:2 101:2,16 153:9 322:9,20 323:2
approach 31:23	asia 94:25 305:12,13	assigned 74:12 77:16	
approached 54:8	aside 42:11 47:5 56:18 175:12 193:10 197:17 257:24		

[attributed - billing]

attributed 99:17	aware (cont.) 158:25 161:10,15,24 162:2 162:9 172:9 176:25 177:18 193:18 194:7,14,19,23 195:2,5,6 222:20 223:7,9 223:12,22 229:16 230:23 230:24 243:24 246:15,25 247:4,6,25 251:25 252:2 275:8,22 276:4 277:25 281:9 282:5 295:4 316:9,11 316:22 334:19 335:15 337:24	banking 64:16 199:11,20 203:10 205:22 217:17	believe 16:2 17:15 18:10 19:7,7 28:20 31:3 39:11,14 41:2 49:18 51:22 61:8,19 62:13 63:7 71:2 75:11 79:19 80:7 81:6,13,16 82:9 83:7,21 87:21 98:21,22,23 110:4 122:6 127:20 128:20 131:22 137:9 142:1,19 151:19,25 152:6,9,10,13,14 153:2,4,5 157:1 174:22 198:8 201:7 207:13 208:13 209:11 227:19 236:7,21 239:1,19,20 241:3 243:11 246:4 255:24,25 257:16 263:20,21,25 270:2 276:17 283:9 288:9,15 290:21 292:9,9 294:14 296:16 302:14 303:23 304:4 310:19 323:13 324:18 332:2 333:22 343:7,9
attributes 68:4,17 73:2,3,5,23 74:12 77:16 82:25 84:19 102:16 102:22 111:4 129:3,6 136:10 141:12,14 142:17 143:8,12,21 144:22 145:1 145:12,23 147:9,11,20 148:2,22 149:5,13,24,25 150:16,19 151:14 196:18	awareness 195:1 245:12	banks 119:8 198:4 216:7,9 283:4 290:6 319:6 340:14 343:15	believes 84:12 160:25
attributing 142:2	awful 187:16	bar 226:17	benchmark 185:15 186:5,7 327:2
audience 32:5 79:1,1,3	awfully 30:8	base 252:17 288:23,24 289:6	benefit 321:9
august 49:8,20 50:1 54:2 174:21 335:22	axiom 38:3	based 43:12 63:3,15 95:7 209:5 217:25 255:23 329:16 334:16 338:16,18	benefiting 323:19
australia 36:21 318:22	b	basic 66:3 338:24	benjamin 4:4
australian 231:7 303:22 317:25	bachelor's 15:12	basically 46:24 106:18 126:16	berg 4:18
author 24:18 232:19	back 12:16 16:10 18:11 19:24 20:18 27:25 28:2 29:1 49:2 65:20 75:9 80:16 102:12 104:14 139:13 140:1,3 149:8 152:25 153:8 160:3,6 197:18 213:10 220:21 232:6 238:20 242:8 244:8,9 244:23 245:1 249:4 256:8 259:24 306:12 314:5 324:25 325:14 336:16	basing 215:13 216:3 218:3	best 69:24 114:20 176:23 194:11 265:12 289:5 337:21
authoritative 111:3,8,12	backed 255:14 333:2,10	basis 62:22 116:5 183:11 194:25 204:13 230:6,17 267:14 269:8 274:21 284:1 287:3 293:10 303:16	better 214:3 216:25 217:1,6,6,8 217:11 236:22,23 237:3,11 295:21 306:1
authority 142:3	background 63:9	bates 6:12,17,21,25 7:6,11,15,19 7:23 8:7,14,18	beyond 60:12 88:13 121:12 126:18 126:19 147:1 200:14 201:6 214:17 278:16,17
authorized 262:18	backward 115:15	bear 170:24 231:25 309:11 314:9 319:12	bid 221:6 308:16 309:2 339:4 339:11,24 340:18 343:5
avail 66:24	bad 195:25	bearing 307:14	big 217:15 234:22 268:25 278:13
available 28:20 95:5 112:16 113:5 115:15 117:9,11 121:4 134:13,18 135:3 171:23 204:12 209:5,10 210:3 211:6 222:5 267:20 270:11 271:20 273:8,13,16 274:3 285:5 289:18 291:5,7,19 303:6 306:15,16	baked 190:8	beat 275:16	billed 51:5
avenue 2:17 4:7 5:16 10:22	balance 229:13 316:9,22 339:15 342:2	beautifully 248:25	billing 34:3 50:16
average 47:3 202:9 203:3 206:4,12 206:13 207:16,22 208:21 210:7,8,9 216:15,16,25 217:6 219:4 307:7 314:18	bank 6:14 18:23 38:2,4 39:14 107:1,15,25 108:23 109:8 109:11,12,14 141:21 142:3 142:17,23 143:5 206:10 215:13,19 227:7 288:21 289:4,9 290:9 292:24 339:7 340:7,8,10	began 49:8,19 54:1 73:16	
averages 269:17		beginning 49:12 50:1 57:25 64:24,25 106:23 149:3,20 197:22 228:8 317:11 337:7	
avoid 241:18 292:25,25		begins 178:12 186:11 255:5	
aware 38:10 63:17,25 79:18 89:8 103:10,17 112:17,21 125:24 131:11,16 158:22		begun 137:6	
		behalf 2:16	
		behavior 187:2 188:17 189:22 323:25	
		behavioral 20:24 21:14 23:9	
		belief 61:15 63:3 129:19,23	

[billion - case]

billion 115:24 121:1 167:15 169:15 170:18,25 171:11 207:13 266:17 267:3,9 270:5 271:19 274:11 277:2 321:15	border (cont.) 216:23 254:25 299:23 309:10 338:21 343:3 borders 44:22 bore 245:15 borne 245:5 307:18,20 bottom 31:2,17 32:16 34:19 186:13 213:15 255:12 274:7 285:9 bought 44:24 boulders 143:16 144:11,12 bound 8:21 67:1 box 226:8 brad 321:8 bradley 1:7 2:7 4:17 5:3 brandeis 17:3,7,8 20:20 21:7 22:17 22:24 23:4,14,25 24:21,25 33:22 break 51:19 65:11 75:19 102:4 151:11 159:3 204:20 212:12 213:4 259:20 313:23 bridge 92:8 97:22 105:2 127:7 205:14,25 222:4 295:22 297:10 bridget 1:24 2:19 11:2 237:21 345:24 bridging 225:7 briefly 106:2 338:9 briefs 47:20 bring 79:2 231:25 333:23 bringing 170:22 341:20 brings 37:2 british 190:15 broad 42:18 83:6 197:14 210:14	broad (cont.) 230:12 298:25 broader 83:8 broadly 28:5 100:7 142:11 322:14 brought 54:10 bucket 156:25 buckets 156:16 building 112:14 320:5 built 306:1 bullying 34:1,5 bunch 116:24 bureau 176:8,13 business 177:8,9 178:14,18 242:4 243:3,16 245:16 251:21,23 253:14 258:23 330:22 businesses 183:6 buy 91:20,23 104:16,19 123:12 127:1,12 155:21 220:3 229:2 313:9 buying 29:8 220:22 229:3 309:9,25 buys 127:4 byzantine 55:5	calling 98:11 calls 60:7,23 61:12 155:10 camp 93:21,22 94:5,22,25 97:15 100:10,22 camps 96:2 canada 36:7 38:3,13 39:14 40:18 40:18 41:10 42:1 canadian 38:17 canadians 38:14 cap 272:1,2 capital 7:21 224:8 capped 267:9 caps 267:19 captures 142:6 card 335:9 cards 313:24 care 143:25 284:25 career 176:11 191:25 careful 103:7 141:8 220:9 223:7 253:8 286:21 carefully 30:10 90:15 121:13 150:24 260:22 carl 81:25 82:2 carol 1:16 2:15 6:3,11 7:14 10:10 11:20 344:1 345:5 case 1:6 2:6 20:10 27:15 34:22 36:8,13,14 37:1 38:5,7,9,12 38:17,21,23 39:2,12,12 40:5,20 41:19 42:1,6,14 43:7,16 47:15,17,22 49:5 50:16,24 53:22 54:2,9,15 54:21 55:13,16 57:10 60:5 60:21 61:2,2,10 63:8 64:25 65:1 137:8 139:16 168:7,10 170:25 200:21 211:25
billions 274:12 277:3 bills 43:19,20 50:14 bio 20:23 22:25 31:3 34:18 bit 26:17 49:2 51:4,20 117:22 153:12 156:14 214:9 290:3 305:19 337:2 bitco 255:16 bitcoin 150:23 151:15,20,25 152:3 152:6,9,13,14,21 153:2,5 158:13,16 176:3 179:3 180:13 183:13 186:24 189:20 190:12,14 193:12 215:1 233:24 234:7,15,17 234:23 235:5,8,21 268:8,11 268:16,16 bitcoin's 138:1 183:3 186:11 bitcone 151:19 [REDACTED] 8:11 44:8,9 254:24 255:16 255:18 bjleb 4:10 blackburn 36:21 blockchain 235:8,18 236:14 251:24 bolivar 128:7 133:23 134:3 135:6,9 135:10 332:24 334:11 bolivian 124:25 bond 36:13 38:12,18 bonds 36:12 38:18 book 109:2 160:20,23 boppenheimer 4:24 border 8:12 43:25 60:1 61:22 212:18 213:19,24 215:8	border (cont.) 216:23 254:25 299:23 309:10 338:21 343:3 borders 44:22 bore 245:15 borne 245:5 307:18,20 bottom 31:2,17 32:16 34:19 186:13 213:15 255:12 274:7 285:9 bought 44:24 boulders 143:16 144:11,12 bound 8:21 67:1 box 226:8 brad 321:8 bradley 1:7 2:7 4:17 5:3 brandeis 17:3,7,8 20:20 21:7 22:17 22:24 23:4,14,25 24:21,25 33:22 break 51:19 65:11 75:19 102:4 151:11 159:3 204:20 212:12 213:4 259:20 313:23 bridge 92:8 97:22 105:2 127:7 205:14,25 222:4 295:22 297:10 bridget 1:24 2:19 11:2 237:21 345:24 bridging 225:7 briefly 106:2 338:9 briefs 47:20 bring 79:2 231:25 333:23 bringing 170:22 341:20 brings 37:2 british 190:15 broad 42:18 83:6 197:14 210:14	broad (cont.) 230:12 298:25 broader 83:8 broadly 28:5 100:7 142:11 322:14 brought 54:10 bucket 156:25 buckets 156:16 building 112:14 320:5 built 306:1 bullying 34:1,5 bunch 116:24 bureau 176:8,13 business 177:8,9 178:14,18 242:4 243:3,16 245:16 251:21,23 253:14 258:23 330:22 businesses 183:6 buy 91:20,23 104:16,19 123:12 127:1,12 155:21 220:3 229:2 313:9 buying 29:8 220:22 229:3 309:9,25 buys 127:4 byzantine 55:5 c calculate 52:20 338:5 calculated 191:1 331:20 calculating 40:22 41:3 calculation 190:23 california 10:19 call 26:8 78:12 120:6 138:24 342:5 called 120:11 172:20 209:18 211:5 234:24 288:22 320:6	calling 98:11 calls 60:7,23 61:12 155:10 camp 93:21,22 94:5,22,25 97:15 100:10,22 camps 96:2 canada 36:7 38:3,13 39:14 40:18 40:18 41:10 42:1 canadian 38:17 canadians 38:14 cap 272:1,2 capital 7:21 224:8 capped 267:9 caps 267:19 captures 142:6 card 335:9 cards 313:24 care 143:25 284:25 career 176:11 191:25 careful 103:7 141:8 220:9 223:7 253:8 286:21 carefully 30:10 90:15 121:13 150:24 260:22 carl 81:25 82:2 carol 1:16 2:15 6:3,11 7:14 10:10 11:20 344:1 345:5 case 1:6 2:6 20:10 27:15 34:22 36:8,13,14 37:1 38:5,7,9,12 38:17,21,23 39:2,12,12 40:5,20 41:19 42:1,6,14 43:7,16 47:15,17,22 49:5 50:16,24 53:22 54:2,9,15 54:21 55:13,16 57:10 60:5 60:21 61:2,2,10 63:8 64:25 65:1 137:8 139:16 168:7,10 170:25 200:21 211:25

[case - clear]

case (cont.) 223:19 235:10 239:21,24 262:16 264:9 338:10	certify 345:4,13	charges 223:8 341:10	citations 77:11 110:2
cases 39:11 126:18 269:25 287:24	cetera 145:24 335:10	chart 131:25 133:18,18 191:10 191:14 207:3,7,18,24 216:12 219:4 332:2,3 335:18 336:4	cite 93:19 100:11 107:17 108:10 130:15 141:16 142:13 144:17 195:13 196:3 198:24 199:3 232:24 233:4 337:20,21
cash 67:2,9,13 258:17	cgsh.com 5:10	charts 131:16,18,20 132:9,22	cited 74:25 75:12 93:25 94:10 107:25 110:12,15 168:20 168:22 203:15 224:17 240:4,5 246:21 307:17 337:1,25
categories 144:12 338:22 340:16 341:22	chain 216:7	check 32:14	citing 129:16 199:10
category 75:2	chains 198:4 203:10	chief 238:22	civ 1:6 2:6 10:13
cattle 141:5	chair 33:23,25	chiefly 323:19	claim 259:10 287:25
cause 345:7	chaired 24:22	choice 12:12	claimed 259:4 286:17
caveat 87:23 89:7 155:15 169:21 333:20	challenge 210:17 234:22	choices 251:16	claims 54:20,22
caveats 240:25	challenges 38:23 244:16	choose 163:21 192:17 292:7	clarification 29:23 39:17,24 44:17 53:14 58:12 88:23 90:18 100:24 102:24 118:7 146:1 158:11 166:10 194:6 257:15 277:16
ccr 2:20	challenging 248:22	chooses 127:8	clarified 30:21 72:19 113:11 210:21 269:2 277:25 284:8 287:13 288:14 316:8 326:10
ceased 138:17	championed 82:10	choosing 179:18	clarify 12:20 27:21 28:10 29:1,2 30:20 41:8 42:19 47:16 56:1 58:2 71:22 86:13 98:5 111:11 113:21 146:20 147:19 148:20,21 161:22 166:6 172:8 178:24 181:3 193:22 248:19 252:10 254:4 256:23 259:3 284:16 312:14 318:17
cent 219:17	chance 48:24 52:13 73:14 180:8 240:19,22 242:19 261:6 324:11	chose 110:1 132:2 141:22 164:2,4 192:22 251:1 285:14	clarifying 85:25 89:15,16,20 145:23 202:12 203:12 205:22 322:24
center 338:24	chances 134:24	chosen 251:2	clarity 308:17
centers 176:16	change 12:25 128:10 130:5 133:16 171:14 268:12 270:18,25 271:6 273:22 287:4 292:25 302:1,2 314:19 319:9,17	chris 38:2 39:13	class 21:4,15,19 41:14
central 64:16 79:19 283:3 288:21 289:4,9 290:6,9 292:24	changed 130:17 181:22	christian 1:8 2:8 5:12	clear 49:25 96:18 101:17 103:9 117:16 120:6 130:1 144:1 147:3,3 155:1 158:3 196:11
centuries 80:16 82:22 147:25 148:4 272:20	changes 130:4,5 131:19,20 133:13 134:2 184:25 185:1 186:9 253:11 270:7 272:20 279:19 281:22 284:12,13 289:8 290:3 293:1 295:6	cigarettes 93:20 94:5,14 95:4,10,11 95:18,21 96:10,24 100:7 144:16	
century 136:22	changing 167:16 252:18 287:20,23 288:15 289:6,19	circle 8:11 254:25 255:6,19 256:6 257:9,12	
ceo 321:8	channels 205:21,22 256:9 305:15	circulate 273:2	
certain 57:8 64:4 79:18 89:8 121:19 124:24 125:10 266:4,7 303:8,9 308:19,25 314:19 341:2	char 223:8	circulated 138:17	
certainly 17:23 20:5 94:8 110:15 183:18 227:6 262:8 327:4	characterization 61:5 290:2 323:24	circulating 272:24 273:2,21	
certainty 121:15,18,25 122:5 208:15 208:16	characterize 112:22	circulation 136:25 283:22 284:2	
certified 10:17 345:10	characterized 70:12 142:11	circumspect 60:15	
	charge 109:15 223:9	circumstances 313:18	
		citation 106:10,15 141:16 212:20	

[clear - consensus]

clear (cont.) 197:11 200:3 203:15 222:9 223:11 245:19 250:19,23 251:15 267:7 268:2 271:17 284:7 294:18 302:3 304:1 308:13 327:14	commercial 239:8 243:1 commercially 209:9 210:3 211:6 285:5 commission 1:4 2:4 3:7 10:11 committee 15:6 24:22 committees 34:11,15 committing 321:14 common 85:3 244:3 246:5 303:19 commonly 74:12 76:8,14 77:16 89:25 93:25 103:18 171:1 326:5 326:10 327:2 334:10 335:8 communicate 99:22 communicated 26:14 86:25,25 306:20 communication 25:21 62:10,19 70:6 communications 45:19 60:11 70:10 71:14,18 163:17 community 170:23 companies 116:15 239:7 company 55:23 56:4,21 255:7 275:9 comparable 204:11 comparative 228:1 compare 147:21 214:20,25 237:2 compared 151:14 190:13 192:11 199:3 234:7,14 343:2 compares 192:4 214:19 226:22 comparing 193:11 198:16 203:8 215:16 216:13 comparison 133:7,14 135:23 147:8 152:4 191:16 192:13,18 198:7 214:22 215:6,9,11 236:5 237:6 317:21 comparisons 198:11 compel 334:2	compensate 245:23 compensated 313:19 compete 251:24 305:16,23 competing 253:19 competition 214:4 competitive 243:16 competitor 8:17 213:20 214:1 216:24 305:6 competitors 251:22 252:1 253:18 255:25 257:19 compiled 200:15 complaint 55:9,10 complete 31:10 32:20 113:16 148:8 completely 30:11 183:4 184:1 complex 69:12 complicated 66:7 69:9 187:15 220:17 composed 243:12 compound 208:5 computer 234:18,20,23 345:12 computing 233:6 234:6,21 con 308:15 concept 81:8,13 218:19,20 269:4,5 270:6 271:18,21,22 272:9 288:14 294:19 317:22 concepts 106:11,16 205:15,15,17 269:3 318:25 conceptually 329:17 concise 251:16 concisely 26:18 conciseness 251:15	concluded 112:4 344:5 concludes 343:25 concluding 274:22 conclusion 61:13 111:24,25 112:6,20 128:19 130:6 157:21 164:10 199:13 251:18 268:17 276:19 280:1 conclusions 60:7 112:16 128:14 191:6 235:23 conditions 253:4 313:11 confidence 203:25 204:5 confident 35:15,21 243:25 confidential 9:15 confidentiality 211:25 confine 135:9 confirmed 25:13 conflates 83:25 confuse 308:15 confused 308:25 confusing 29:22 confusion 39:9 conglomerate 208:2 connect 197:7 connected 345:14 connecting 265:19 connection 22:5,21 27:2 35:15 46:22 147:13,14 148:13 165:19 261:17 265:3 293:10 consensus 8:6 70:17,18 73:4,21 74:16 74:20 75:14 83:6,8,15,19 84:1,8 99:22 100:4,19 101:1 102:15 106:19,20 112:14,14 129:2 142:2,7,11
--	---	--	--

[consensus - countries]

consensus (cont.) 142:20 143:2 149:12 162:10 170:24 171:17 184:14 196:14,16,22 197:13,14 232:16 234:16 234:18 235:1,7 236:16 281:19	consumer 207:25 215:23 217:22 218:5,10 219:5 220:14 227:16 229:25 consumers 220:2 contain 265:22 contained 274:9 contains 15:2 context 96:1 114:21,24 140:20 142:10 157:8 210:14 231:1 245:10 271:22,22 285:23 286:4 294:20 339:9 342:9 342:12 contexts 76:3 89:9 114:2,3 230:25 continue 191:13 303:11 continued 4:1 5:1 258:24 334:24 continues 31:3 186:13 213:15 277:7 continuing 117:5 291:23 contract 50:2 contractors 53:3 contrary 287:24 295:18 297:7 contrast 285:11 286:12,14,15,17 287:19 310:12 333:6 contrasting 269:16 contribute 149:13 150:16 contributions 38:9 177:2 control 288:21 controlled 131:3 287:13,18,20 294:21 controlling 291:6 292:24 controls 288:22 conversation 78:10,11,21 146:8 conversations 60:8,17 72:1 242:7	conversion 114:25 256:7,9,25 315:18 315:20 convert 257:5 258:17 convertible 67:23 convey 83:5 196:14,16 conveyed 71:17 83:7 copies 53:19 copy 28:7,15,24 50:14 225:20,22 247:9 296:8,20 core 110:21 corpus 171:15 correct 16:20 17:1,3 31:24,25 32:10,19 33:1 34:13,16 50:18 52:11 59:4 68:13 75:6 91:2 94:11 102:14 103:1 107:23 110:13 116:6 119:16,17 120:21 122:2,10 122:16 128:15 129:14,17 129:21,24 131:4,9,25 132:14 141:14,15,25 143:17,22 144:13 145:13 147:11,12 149:10 158:9 161:13,25 162:1 163:10 164:6 170:14 181:19 182:18 185:3 188:10 190:11 195:17 196:15 198:13 203:14 206:14,15 207:22 212:24 214:8 216:15,19,20 220:4,14 229:3 238:6 239:21,22 240:1,7,10 247:4 254:3 262:7 278:22 279:16 280:7 282:2 290:20 294:6 299:25 307:24 314:20 320:13,18 332:16 338:1,2 340:2 corrected 227:17 correction 263:20,22 correctly 92:19,21 180:18 183:9 190:19 266:20 279:1 280:5 280:6 283:21 290:19 296:2 296:3 314:12 320:8,9 323:9 correlation 187:1 188:17 189:22	correspondent 198:4 203:10 216:7,9 corresponding 199:20 corridor 300:2,17 301:7,12,13 302:8 302:16 311:4,19 316:11 317:1,3,5 corridors 125:9 126:11,22 305:7 311:24 312:6,12 316:1,12 316:23 cost 166:3 205:20 206:4,12,13 207:10,16 208:1,21 210:9 214:19,20,25 215:6,7,14,19 215:22 216:2,4,5,11,13 217:20,22 218:3,5,10,14 219:4,12,15,21,24 220:7 222:10,13,14,20 227:14,21 227:25 229:24 230:5 232:1 245:5 319:12,16 338:10 costly 214:6,12 215:12 216:11 217:17,17 226:20,24 340:15 costs 153:1,3 207:8,17,19,21,22 216:8,15,16 219:1,5,6,8,8 220:25 221:2,11 222:2 223:12,18,19 225:15 227:10,10,15 228:1 241:7 245:14,15 307:7,14,18 308:8,9 338:5,13,20,23 340:5 counsel 12:10 13:17 28:23 42:3 43:23 45:19,23 46:14,17 50:7 52:24 53:6,16 60:9,12 60:18 61:7,19 62:20 64:18 64:23 69:25 70:7 71:3,15 71:18 72:2 163:12,18,25 164:9 171:6,18 200:24 201:3 241:10,17,19 242:10 260:16,17,23 261:10,21 262:24 265:3 345:16 counselor 225:17 counsels 10:23,24 counsel's 60:14 count 34:25 123:5 countries 125:25 126:12,13,14,16,17
--	--	--	--

[countries - day]

countries (cont.) 137:4 206:5,14,19 207:15 208:9,18 210:10 216:14 289:1 301:23	criteria 81:18 161:2	currencies (cont.) 123:4,25 125:5 126:1 128:2 128:4 136:5,11,16,20,23,24 137:13 183:5 184:2 187:2 188:18 189:23 190:13,16 191:18 192:1,5 225:7 227:6 229:11,12,15 278:24 279:15,17 280:25 281:20 281:21,22 285:12 286:13 286:14,16,18 287:24 294:1 304:14 314:14,20 331:2 333:2 334:11,21 335:23 336:5	current 27:23 33:21 268:9
country 44:12,12 87:12,17 207:22 208:1,22 216:17 269:22 287:1 301:20 302:5,6 334:15	critical 57:2,14,19 58:4,9,23 337:4 337:9		currently 24:10,25 35:24 178:23 273:1
country's 279:11 287:1,4	criticism 309:23		curriculum 15:3
county 345:3	criticize 314:17		customers 183:6 210:20 212:17 220:6 253:19 258:17
couple 145:9 180:6 186:15 202:10 251:25 325:25	cross 8:12 43:25 60:1,1 61:22 95:4 194:5 212:18,18 213:19,24 215:8 216:23 254:25 299:23 309:10 332:11 336:22 338:21 343:3	currency 18:13,15 23:11 29:4 43:25 45:3,7,10 59:23 60:1 61:22 62:15 63:24 64:5,15 65:2 68:4,7,10,16,18,19,22 69:2 69:3,5,11,14,22 70:2,12,23 71:9,25 72:9,10,13,20,22 73:6,8,15,22 75:22 80:1 85:11,17 86:3,7 87:3 88:24 89:3,19,24 91:7 92:8 93:10 93:10,12 94:14 95:9,10,18 95:22 96:11,25 97:2,22,24 98:12 99:6 100:2,12,15,15 104:18 111:18 112:20 113:14,24 115:20 116:10 116:16 118:9,17 122:18 123:5,9,15,20,21 124:7 125:1 127:22 128:11 129:1 129:4 130:3 135:7,13,18 136:1,10,10,11 137:5,13,18 138:24 141:13 142:18 145:18 146:4 147:24 148:4 148:15,16,23 149:6 150:1,3 150:4,7,17 151:15 153:14 153:15 154:5,15,23 155:7 156:17 157:20,25 158:13 158:17 176:3 179:4 186:12 192:4 194:9 196:13,17,18 196:24 212:18 221:17,18 222:3,5,23 228:5,12 229:18 230:8,8,19 231:21 252:17 256:10,25 257:3,3,6,6 267:15 280:10,23 281:12 283:1,11,22 284:18 288:4 295:11,12,16,22,24 297:9 297:11,23 299:13 302:17 303:13,17,21,24,25 304:2 310:25 311:1,10,16 312:17 315:10,12,13,15,24 316:22 317:3,6,11,12,13,14,22,25 319:7 329:12,12,14 332:12 333:10 334:25 335:1 339:1 339:13,13	cv 31:3,14
course 22:15 34:8 108:21 203:4 270:1	crossed 82:1		cyberspace 66:25
courses 17:17 18:12 20:24 21:6	crosses 332:12		d
court 1:1 2:1 10:14,19 11:1 25:5 37:14,17 38:22 39:18 40:4 40:12,23 41:1,3,10,15,17 47:20 60:20 61:8,19 84:11 99:23 155:13 175:16 238:8	crr 1:24 2:20 345:24		d.c. 4:22
courtroom 38:6	crypto 8:10 229:13 254:24		daily 48:12 114:17,19 204:12 332:6,11 335:21
cover 125:11 238:7	cryptocurrencies 15:19 16:6,8,9,17 17:18,24 18:17 19:24 20:7,9,11 21:8 22:16,20 23:11,15,21 24:1 24:16 27:4 28:5 37:4 42:21 42:22,24 45:10 63:10,19,23 64:4 65:2 66:13,22 137:23 138:3,17 150:18 194:9,21 195:14,21 196:23 197:12 281:14 334:7		damages 40:22 41:3
covered 342:8	cryptocurrency 8:5 18:13 24:8,12 25:23 29:25 37:8 43:2,8,22 65:23 65:25 66:4,17 67:24 138:9 193:12 220:17 232:15 252:3,11,16 255:20 256:1 257:1,4,7 258:23 259:9 280:23 282:4		danish 303:13
cowrie 145:2,3,6,9,12,17,22,25 146:2,9,14,21,23 147:9,14 147:18,22,23 148:4,14,20 148:24	cryptographically 321:15		daphna 3:10
cows 104:13 143:15 144:3 145:16	cryptos 195:7		dartmouth 17:11
create 190:7 191:15 210:18 262:18 289:5	csr 1:24 345:24		data 134:7,12,17 135:4 190:10 191:4,6 192:12 208:3 332:19 336:3
created 167:16 206:3,3 266:18 285:1,4 300:24 336:3	curious 68:21 144:19		database 134:10,13,14
creating 55:2 284:17 300:23	currencies 20:5,9 21:4,5 25:24 43:13 45:1 62:15 73:5,23 74:13 76:9,23 77:4 83:14 91:4 101:21 105:5 113:12 114:17 115:5 122:11,19		date 10:7 50:23 51:3,6 134:11 176:4 179:4 285:3,6
creation 168:24			dated 6:16,24 7:5,10,14,18 174:21 260:10 263:19
credible 141:24			david 5:23 10:16 176:3 177:25 178:13 232:19,21
credit 335:9			day 21:19,25 114:22 115:11,14 128:9,9 130:7,7,19,19,20 130:20,25,25 131:2,2,5,5 131:11,11 160:7 204:18,19 267:13,13 268:5,5 269:10 269:10,13,13,14,14,18,18 269:23,23 270:4,4,7,7,12 270:12 272:15,15,16,16 279:12,12,18,18,19,19 283:11,23,23 284:3,3,11,11 284:13,13,14 285:14,14 286:24,24 287:3,3,3,3,10

[day - disagree]

day (cont.) 287:10 288:16 289:8,20 290:3 291:25 293:9,9 294:12 295:2 302:23 337:7 340:9 345:18	defining 129:9 310:1	depreciating 133:23,24 334:23	diagram 225:2 335:17
days 67:11 202:10 203:9 263:19 294:22 319:6,8,17 340:10 340:14 343:14,16,17,17	definitely 23:21	depreciation 135:6,7	dickens 237:10
de 197:22	definition 57:18 61:5 65:25 66:9 67:23 68:5,14,21 69:1,3 70:23 71:8,25 72:12 73:15 75:21 97:6 111:12 114:10 123:10 138:14 140:16,17 141:9 151:18 185:8 187:14 188:19 220:10 245:10 262:5 273:14 326:11 327:4 328:24,25 329:11	depth 333:18	differ 211:15 252:21
dealing 24:7 301:4	definitions 72:10 106:20,21 107:3 148:21 161:2	derived 234:4	difference 150:2 270:17 292:22 315:23
dealt 39:12 90:14	degree 15:15,16,19,22 16:5 75:13 272:24	describe 21:20,24 33:21 39:11 41:13 91:13 176:18,23 215:6 247:19 282:21 288:23	differences 132:12,17 152:11,23 343:1
debate 82:21 85:7 158:15	deliberately 250:14	described 30:3 39:15 62:5 107:4 111:20 173:21 223:14 227:3,5 235:8 245:9 257:17 283:9	different 38:21 43:18 44:12 45:1,10 75:10 79:16 86:1 91:8 101:24 104:24 105:18 111:19 119:23 139:8 153:22 171:11 179:7 192:10 211:13,14 227:13 250:22 256:6,24 257:8 268:8 269:5 287:25 288:4 289:15 290:14,15 318:24 336:5 339:2,3
debates 82:23,24 85:23	delve 85:4,6 98:16	describes 59:15 258:12	differently 156:14
debevoise 2:17 4:3 10:21	delved 99:24 158:20	describing 40:21 55:4 75:14 83:14,19 100:25 106:19 109:5 247:20 256:14	difficult 104:5 132:16,23,24 308:18 329:18
debevoise.com 4:10,11,12	delving 85:22	description 6:8 7:2 8:2 154:17 191:23 202:14 227:15 309:1	dig 122:17
decade 18:23 119:1	demand 7:22 59:24 61:20 224:8 225:2,16 226:15 270:9,19 270:23 271:13,17 273:11 273:22	descriptions 56:21	digital 59:22 67:16,21 122:11,11 122:17,24 218:2,3 226:22 226:25 227:6 267:20 268:18
decide 61:9,10,20	denying 161:7,13,23	design 33:25	dir 218:2
deciding 60:20	department 178:13	designated 333:1,13	direct 11:14 13:6 14:23 119:3 147:8 179:8 186:21 213:13 266:7,12 304:4 320:20
decision 132:7,8	depending 84:3	desire 278:10	directing 179:15
declaration 6:23 238:21 240:13	depends 140:20 316:18	destination 302:6	direction 9:3 306:23
deeply 87:8 88:15	deposed 11:24	detail 199:8	directly 28:6 55:23 61:18 105:2 147:21 152:18 204:11 234:7 304:22 335:13
def 114:10	deposition 1:15 2:15 9:1 10:9 14:7 37:23 38:6 45:14 46:22 47:13 48:2,21 49:3 52:6 55:18 89:3 151:18 153:16 174:7 175:19 223:24 232:9 237:18 239:24 254:6,9 260:6 263:11 264:18 266:8 296:22 344:1,4 345:5,8,9	details 85:4,7	dis 48:16 335:3
defendant 4:2,14 5:3,12 13:20	depositions 40:3 239:21	detectable 279:11 281:21	disagree 41:19 90:16 148:12 162:4 181:13,14 182:4 183:12 184:5 187:6,20 189:19 267:7,9 297:12,17 323:17 326:2 328:2,24,25 329:3,22
defendants 1:9 2:9 54:14 55:15 56:15	deposits 255:9	determine 117:14 302:25	
define 61:3 106:8 108:2 197:23		determining 305:25	
defined 73:8 96:1 99:15,19 101:7,8 101:18 107:10 111:8 138:15 140:23 141:2 146:8 187:13,18 188:3 269:2 273:6 275:20 319:16 327:3 328:21 330:1		detrimental 282:18	
defines 198:12		deutsche 38:4	
		develop 197:15	
		development 301:2	
		deviation 310:9 331:16	

[disagree - economy]

disagree (cont.) 330:24 331:8 332:14 333:7 334:9,14 335:4	dissertation 34:15	dollars (cont.) 310:10 315:18,19 317:6,10 317:16,23,25 318:1,4 330:8 339:12	duly 11:5 345:6,10
disagreeing 297:3 298:15	dissolution 247:20	domestic 255:10	durability 168:24 169:11
disagreements 85:4	dissolved 248:1,3,5	dominant 142:17 315:15	e
discernible 269:22	distant 23:13	dominant 7:9,18 46:1,2,4,5 47:6 135:21 192:6 202:8 263:17 264:1 266:5,15 269:4 271:23 286:17 295:24 296:5 298:11,15 299:11,20 299:22 307:6 309:9 314:17 315:6,7 319:23 320:3,11,21 320:21 321:3,5,6 323:8,15	earlier 44:17 135:22 147:19 153:16 160:7 172:8 174:12 174:24 176:11 188:25 227:24 290:16 307:17,18 312:25 316:8 322:1,4,21 324:9 326:10 331:15 332:2
disclose 70:5 71:16	distinction 89:10,15,19 294:1	dots 197:7 265:19	early 18:21 49:20 54:19 210:22 211:3
disclosed 249:12	distinguish 267:14	double 91:14	earth 67:1
discontinued 137:5	distributed 66:24	downloaded 171:22 173:8	easier 103:3
discourse 76:15	district 1:1,2 2:1,2 10:14,15	dozen 96:22 97:8,9	east 305:11,14
discovery 31:18 47:19,19 55:13,16	divergence 82:25 84:18	dozens 94:18	eastern 100:14
discuss 17:24 20:3 21:3,5 56:14 59:6,9 60:10 157:10,14 163:16 197:19 242:6,9 250:8	dividends 67:12	dr 260:2	econ 82:22
discussed 21:14,17 58:23 111:18 153:16 160:7 171:1 174:24 227:14 301:1 307:13 315:15 343:16	divisibility 144:5 145:24 147:20	draw 71:14 112:16 128:7 198:11 268:17 280:1	economic 59:21 85:7 174:20 176:8,13 270:20 280:22 284:1 295:19 298:16,17,22 301:3 324:3 338:17 342:25
discusses 68:3 77:9	divisible 151:25 152:1	drawn 112:6,20 199:13 331:11 335:6	economically 59:25 61:21 267:12 268:3,4
discussing 64:3 84:17 101:11 194:8,20 207:20 230:13 243:13 301:8 309:24	document 13:6,7,8,10 41:12,25 232:5 234:12 251:15 276:12,23 277:8 278:17	drew 70:17	economics 15:12 26:4 64:15 268:21
discussion 21:20 22:6 30:25 70:15 80:11,15 82:21 145:17 147:14 148:1 195:19 214:24 227:20 246:7 294:4	documents 9:20 40:21 45:21 47:15,16 47:18 54:19 55:1,6 56:23 57:2,8 58:4,5,9,10,21 59:8 76:4 240:3,4 249:3 310:21 320:12,16,17 323:16	dramatically 133:16,23 287:7	economies 283:2
discussions 55:21 56:2 221:10	doing 33:15 155:18 235:16 284:18 289:4 315:19 325:23 337:21	draw 71:14 112:16 128:7 198:11 268:17 280:1	economist 43:13 77:12 81:24 82:6 84:12 108:17 109:6 112:17 160:14 278:20 333:21 336:2
disentangle 161:21	doll 316:9	drawn 112:6,20 199:13 331:11 335:6	economists 26:2,3 77:17 79:18 80:8,16 82:16 83:10,16,21 93:19,24 94:8 100:6,19 101:1,22 102:15 106:12,13 108:24 109:7,13 110:3 112:10,21 129:2 140:12 142:21 143:3 144:17 149:5,11,12 158:16 158:25 160:25 161:5 171:17 176:15,19,22 184:14 195:20 196:14,22 210:17,24 244:3,14 272:19
disinterested 345:11	dollar 122:19 128:6 132:14 133:7 133:14,15,17,18 140:25 171:11 192:12,15,15 255:14 257:18 287:5,9 290:11 294:25 295:6,15 298:2,5,6 301:25 303:22,25 304:22 310:20,21,22 311:1 315:13,16 317:9,15 331:19 334:12,16	drive 147:8	economy 91:9 92:23 93:9 98:9 99:1,4 135:18
dismissed 40:6,8	dollars 43:21,23 122:25 123:4 132:18 190:2 219:17 231:7 256:13,17 288:9 289:18 290:18 299:15 300:3 301:14 302:16 303:2	dry 309:7	
dispute 191:6		due 253:11	
disputing 310:1,2			
disruptive 119:5 210:15 243:15 244:15 248:20 251:20 253:16 301:3 305:23			

[educated - exchanging]

educated 78:12	endorsed 109:13	essential 58:15	examples 250:11
education 15:4	ends 116:1 307:24 343:5	essentially 19:4 129:7 337:3 338:4	exceed 52:14
effect 208:20 210:6 267:21,25 268:22 270:3	endurance 204:20	establish 25:16 72:11 244:18	exception 74:24
effectively 104:10	engage 43:15	established 322:25	exceptions 90:19 304:23
effectuate 243:1 312:19 313:10	engagement 35:17 36:16 43:4 49:7,25 50:3 52:23 112:6 241:10 242:1 261:13,18 262:18	estimate 114:20	excess 307:7,12
efficiency 218:24 234:6	engagements 33:5,12 34:22 35:1,7,10 37:3,7 38:1 42:11	estimated 115:25	excessive 186:25 188:16 189:2,21
efficient 91:1 233:23	enhance 141:12 142:18 149:13,25	et 10:12 145:24 335:10	exchange 1:4 2:4 3:7 8:10 10:11 17:19,22 18:13 22:21,25 23:1,16 24:1 31:24 39:12 42:1 45:4,7 62:15 81:17 90:9,11 91:1,1,3,6 92:1,1,2 92:4,10,17,25 98:10 102:17 103:13,19 104:3,9,17 105:20 106:1 113:5,12 114:11,12,14,17,22,24 116:16 118:1,10,17 119:20 123:5,9 125:4 126:1 128:10 130:8,21 131:1,2,6,12 132:13 133:15 134:11,12 135:23,25 153:17 154:5,23 155:7 156:18 160:12 172:1 173:14 192:15 210:7 221:5 222:23 228:4,11,15,19,25 229:17,17 230:7,13,14,15 230:18,23,25 231:3,8 232:1 254:24 257:7 269:21,24 279:12 280:4,13,20 287:6 298:1,3,6,8 299:24 303:20 304:4,19 310:9,22,24 312:17 314:13 315:14,16 318:5 319:4,5 326:5,15,20 327:11 328:5 330:19 333:14 335:8 339:1,2,2,5,7 339:24 340:23 341:3 343:8 343:13
efforts 338:4	enhances 149:17	euro 190:16 192:12,15 303:14 303:15 304:23 331:19	exchanged 91:8 222:3 229:14 230:19 231:5,6
eight 325:19	enrich 28:4	europe 100:14 304:23 305:14	exchanges 17:19,20 115:19 116:10 152:15,22,24,25 153:10,24 153:25 154:4,8,21 155:20 157:19 158:4 162:22,24 163:8 164:11,22,25 165:9 221:11,16 229:14,14,22 255:14 256:12 284:19
either 22:20 24:11 39:19 41:16 54:3 55:21 56:2 64:8 68:21 82:9 89:15 95:5 106:4 127:18 153:21 182:3 183:11 187:6 206:3 208:21 227:16 229:12,25 301:14 325:21 326:21	ensure 283:4 293:3	European 100:14	exchanging 91:4
elaborate 104:11	enter 321:19	euros 124:21 326:20	
electronic 166:4 199:25 236:19	entire 13:8 274:2	evaluate 73:16 265:13	
element 201:18	entities 173:3 274:14 276:8 277:4	evaluated 112:18	
eliminate 216:6 301:11 324:13	entitled 224:8 254:24 345:7	evaluating 229:24 308:8,9	
eliminates 221:9	entity 43:20 176:10	evidence 62:4 117:9,11 139:20 280:2 280:18 281:19,19 282:1 291:10 331:22	
elision 284:6,7,9	environmental 8:4 232:15	exact 69:10 116:25 143:3 245:22 247:24 272:8	
email 3:16	equal 52:14 268:11	exactly 76:5,5 94:16 99:25 115:13 125:12 178:4,9 185:16 195:7 209:25 211:2 217:19 222:18 248:11 283:18 284:25 307:2 308:18 324:17 339:15	
emergent 81:2,15 82:11	equally 280:3,19 296:1	exam 22:3	
emphasize 251:2	equity 246:17 249:8	examination 6:2 11:14 336:22	
empirical 279:10,24 280:8 281:4	equivalent 219:11	examine 30:10	
employed 17:7,8	escrow 272:23,25 273:1,20,22 274:2,12 284:17 285:1 321:7,7,16	examined 11:5 192:1	
employee 232:22	escrowed 282:5 291:2	example 77:10 91:16 100:6 104:14 104:23,24 133:8 250:12,20 251:3 297:23	
employees 53:2 55:22 56:3	escrowing 283:25 284:11,12 291:20		
employment 15:4 22:19	especially 136:14 196:15 205:22		
	esquire 3:9,10 4:4,5,6,17,18 5:6,15		

[excuse - feedback]

excuse 26:19 53:10 58:2 62:8 88:11 213:21	expect 241:1 268:11 270:12 271:1 271:2,9 272:15 273:2 274:4 285:16 341:11	extends 147:1 294:4	fair (cont.) 119:15 127:23 128:21,24 131:13 138:8,13 147:7 148:11,16 156:6 157:3 162:13 167:22 171:4 188:7 193:6 202:13 203:2,25 205:8 234:5 237:4,16 251:17 278:6 323:19 333:20
execute 255:10	expectation 273:23	extensive 33:15,23 63:9 77:8	fairly 94:7 278:4 287:17
executed 319:9	expected 271:25	extensively 18:16	false 290:2 306:6
executing 119:5	expensive 307:7	extent 70:7 173:9 179:21 185:1 186:8	familiar 54:2 79:4,14 81:1,6,7,7,24 82:5 94:9 140:5,8,10 160:14,18,20,23 176:7 178:2,17 209:22,23 210:17 224:4 252:9,12 260:12,14 264:21
executive 238:22	experience 15:8 17:10 19:12,18 26:24 35:23 42:12,20 43:25 62:14 231:2,22,24 241:12 243:18 305:21,25	externalities 246:8,12	far 31:9,11 38:7 40:6 41:11 45:8,12 51:21,25 54:7 72:7 82:3 96:4,8 119:2 191:4 199:25 217:16 274:10 295:4 318:20
executives 320:13,18	expert 6:10 7:8,13,17 14:14 27:14 33:5,12 34:17,25 35:6,12 35:24,25 37:3,6,14,16,25 39:19 42:10,14 46:9 47:7 47:21 49:4,7 52:7 54:18 56:14 59:16,20 63:8 64:14 69:15 72:14 75:20 77:13 85:2 110:22 111:1 168:7 177:10,14,17 235:18,20,25 241:9,25 263:16,23 264:1 264:25 265:1,14,23 278:14 321:3	extreme 137:8 269:25 291:15	fast 199:22 200:17,22 285:9 292:25 340:10,11 343:18
exhibit 6:10,14,19,23 7:4,8,13,17 7:21 8:4,9,16 13:13 14:4,6 14:7,11,13,24 15:1 20:24 58:1 73:24 74:3,4,5,6 174:6 174:7,14,16,18 175:18,19 175:21 176:1 187:1 188:17 189:22 197:17 223:23,25 224:3,4,7 225:1,15 232:7,8 232:9,14,24 233:11,13 237:17,18,24 238:3,7,11 239:1,3 254:5,6,8,9,13,15 254:22,23 258:5,11,12 259:5 260:3,5,6,9,12,14,18 260:19,24 263:10,11,15 264:17,18,22,24 296:15,21 296:22 320:21 325:5	expertise 18:16 43:13 126:20 236:7 236:12,21 265:15	extremely 93:16,18 197:13 216:4 283:5 291:17 300:18 318:6 334:21	faster 199:18 200:1 214:5,8 227:5 227:6 343:11
exhibits 6:7 7:1 8:1,21 14:21 185:2 254:12 325:3	experts 39:25 53:2,21 56:12 74:13 74:14 75:1,13 76:16 77:15 77:21,23 83:9 235:16	face 340:23	favorable 129:3
exist 16:10,18 18:1,19 19:24 20:11 63:20 132:1,22 194:23	explain 25:14 48:25 60:19 68:8 71:24 72:12,23 269:14 276:6 337:8 338:20	facilitate 96:23 118:24 309:10,25	fear 282:16,21
existed 77:9,10 80:25,25	explained 200:18 213:18 284:24 298:16 307:18 313:3	fact 25:25 57:8 61:9 80:19,24 93:24 94:1 100:11 134:22 136:8 137:18 152:3 163:7 164:21 166:25 168:18 169:18,20 171:2,11 188:24 203:23 204:13 211:7 215:15 216:5 234:11 259:8 271:24 287:14,25 292:9 300:16 302:5 315:12 337:11	feature 221:8 252:24 253:1
existence 20:13 128:9 167:15 169:15 170:19 195:1,2,6 253:6 274:11 277:3	explaining 89:20 234:3	facts 112:15 117:18 139:20,21 170:24 197:6 218:1 271:9 291:10 299:2	features 68:4 252:21
existing 13:19 213:19,24 214:13,21 216:23 217:1	explanation 320:4 333:21	factual 173:10	fed 145:13 147:10 149:24
exists 63:25 304:3	explicit 214:22 215:9 246:5	faculty 33:23	federal 6:14 18:22 19:2 22:18 101:14 106:25 107:4,14,15 107:19,25 108:23 109:7,11 109:11,13 110:18,21 111:4 141:11,21 142:3,16,20,23 143:5,21 174:18,25 290:10 290:17
exorb 207:8	explore 21:16 57:6	fail 144:4	fee 219:16 222:20 223:13 339:18,19,25 341:14,15,25 342:2 343:8
expand 28:11	exposed 313:12 315:20 318:3,8,13	failed 188:17 319:23	feedback 104:25
expanded 23:10 271:1	express 335:10	fails 187:1 189:21 320:3	
	expressed 121:13 233:25	fair 20:13 23:3,14,24 24:6 30:15 32:18 33:2 35:17 36:18 43:6 52:4 57:7 58:25 72:2,21 73:9 78:22 85:8 87:10 88:16 96:16 97:2 101:1 109:8,16 110:6 118:2	

[feel - form]

feel 19:14 31:6 59:16 71:5 88:18 127:16 145:8 179:6 319:21 333:18	find 89:11 91:18,20,23 99:2 108:21 117:13 168:22 197:7 201:22 216:22 227:12 233:17 251:3 269:20 279:10	flip 23:22 133:5 179:6 238:14	foreign (cont.) 154:14,23 155:7 156:17 221:5 222:23 229:10,12 283:11 284:18 299:24 303:20 304:19 310:24 312:17 315:14 318:5 319:4 319:5 343:13
fees 50:11 216:8 222:22 223:10 223:21 227:4 229:17,22 230:2,7,13,15,18,23,25 231:9,17,17,20 232:1 241:7 241:13,13 242:2 243:19,24 259:5,6,7 307:12 308:16 309:1,2 338:24 339:6,7,10 339:14,23,24,24 340:24 341:6,17,23 342:3,6,8,12 342:22,23 343:2,4,6	finding 93:5 finds 165:18 fine 12:18 13:11 29:18 36:9 52:21 102:7 151:3 175:11 179:24 180:2 292:11 finish 12:7 13:2 244:6 315:2 finished 57:9 244:10 finishes 184:3 firm 36:5 43:20 50:6,8 244:1 firms 54:15 244:18 first 12:6 19:17 40:20,22 78:5,8 79:17 106:24 133:13 142:15 149:23 186:22 195:5 202:23,23 225:6 238:20 241:25 244:23 254:13 266:22 279:6 285:10 299:10 311:15 325:19 326:4 328:20 332:23	flow 306:21 flows 67:2,9,13 306:23 316:10 fluctuate 128:4 287:6 fluctuates 128:2 fluctuation 131:12 fluctuations 127:19,21 128:9 130:8,19 130:21 131:1,2,5 269:18 flush 331:13 focus 21:7,18 23:9 119:8 163:7 210:1 focused 22:20,25 23:15,25 31:5 33:4,5 119:7 300:23 332:13 focusing 22:18 231:1 256:8 327:1 follow 147:25 242:15 266:6 267:16 following 74:15 180:11 255:18 269:19 follows 11:6 107:10 167:1 181:21 foothold 244:20 248:23 footnote 78:6 88:25 107:25 166:4 203:14 212:21 224:10,21 232:25 266:13,14,21,23,24 267:6 268:2 269:9 279:18 303:18 footnoted 56:19 58:16 footnotes 74:25 75:12 force 33:25 foregoing 345:5 foreign 17:19,21 18:13 22:21 23:1 23:16 24:1 31:23 39:12 42:1 45:9 62:15 115:19 116:10,16 118:1,9,17 154:5	forget 99:16 forgotten 221:21 form 16:22 20:15 21:10,22 22:12 23:6,18 25:18 27:6,17 29:14 30:6,17 32:24 33:8 37:10,19 39:4,22 40:15 41:5,23 42:16 43:10 44:3 44:14 47:10 48:4,10 49:16 49:24 51:1,8 52:9,17 53:25 54:24 55:25 56:7,25 57:22 58:18 60:7,23 61:12,24 62:7,17,23 63:12 64:12 65:6 66:6,20 67:19 68:1,24 71:11 72:4 75:8,16,24 77:20 79:22 80:22 81:4,11 81:20 82:13 83:18,24 84:15 84:21 85:13,20 86:10,18,23 87:6,14,20 88:4 89:5 90:13 90:21 91:12 92:12 93:4,14 94:20 95:13,24 96:13 97:4 98:1,14 99:8 101:5,13 102:20 103:6,16,23 104:8 105:7,13,23 107:7 109:24 111:7 112:2 113:8,18 114:1 115:4,22 116:18 118:12,21 119:22 120:20 121:11,23 122:21 123:17 124:3 125:7 126:3 127:3,10 128:23 130:23 132:21 135:16 136:7 137:5 138:6,12,21 139:5,15 142:5,25 143:11 143:24 144:24 145:20 146:6 147:17,24 148:7,18 150:21 151:7 152:17 153:20 154:11,25 155:10 157:5 158:2,19 161:4 163:2 163:23 165:2,12,24 166:9 166:17 167:7 168:4,13 169:3 170:4,11,21 171:9,21 172:4,17 173:1,7 174:1 175:7 176:21 177:4,13 180:23 181:6,17 182:6,20 183:15 184:8,21 185:6,14 186:3 188:9,23 189:10,25 190:18 191:9,21 195:23 196:8 197:1 198:22 199:16
fewer 152:24			
fiat 87:11,17 122:10 123:15,20 123:21,24 124:6 137:18 230:8,19 231:21 256:7,9,25 257:2,3,6,6 267:15 278:24 279:15,17 280:23 281:12 281:20 283:1 285:12 286:12,14,16,18 287:24 288:3 294:1 299:13 311:10 311:16 314:13 315:10,24 331:2 333:2,10 335:23			
field 83:7			
figel 4:16			
figure 19:20 120:23 128:5 130:16 130:25 131:17 132:12 177:21 185:19 186:18 190:5,12,20 193:8 206:3,10 206:17,21 208:10 221:20 271:19 287:7,15 289:10,14 310:12 335:17			
figures 120:25 287:15			
filed 238:8			
final 38:19 180:7,9 183:2 311:15			
finalized 56:12 319:18			
finally 12:19 13:5			
finance 20:25 21:14 23:9 178:13			
financial 20:25 25:25 26:1,2,3 29:5 116:21 238:23 330:3			
	fix 285:14 295:10 fixed 140:15,16 252:17 253:2,5,8 266:16 267:2 286:18,22 287:10,22 288:9,14 294:3 294:15,18,22,23,24 295:7 295:13,14 298:12 flatly 299:12		

[form - go]

form (cont.) 200:12 201:1 202:18 204:2 204:9 205:4 206:23 208:12 208:24 209:2 210:12 211:12 212:4 214:16 215:25 217:4,24 218:8,13 221:15 222:8 223:16 227:2 227:23 228:7,17,22 229:6 230:11,21 231:13 234:9 236:3,10 237:1 239:10 243:5,22 245:8,18 246:18 246:19 247:3,23 248:10,17 249:20 250:1,18 251:9 252:7,23 253:21 256:4,20 257:22 259:1 260:23 261:1 262:18,21 264:12 267:23 268:14,24 270:15 271:4,12 272:6,18 273:5,25 275:1,13 275:15 276:1,3,22 278:12 279:3 280:15 281:16 282:1 282:9 283:16 284:5 286:20 287:12 288:12,18 290:13 290:25 292:5,20 293:19,21 294:17 296:7 297:15 298:21 300:5,12,21 301:16 302:10,19 304:9 307:16 308:2,23 310:7 311:8 312:1 312:8,21 314:22 316:6 321:24 322:17 324:21 327:13 329:9 333:16 334:5	foundations 160:21 founders 291:23 293:14 four 33:24 46:24,24,24 103:8,9 111:17 112:9,19 202:11 224:24 250:3 263:19 fourth 40:20 226:7 fraction 222:11 233:24 235:3,4 frame 88:11 136:18 337:13,14 framingham 11:23 franc 303:25 frederick 4:16 free 7:21 19:14 59:16 88:18 127:16 145:8 179:6 224:8 261:11,15 319:21 332:4 frequent 269:8 frequently 68:17 152:21,22 166:23 329:6,22,25 fresh 168:15 friedrich 82:6 front 178:21 fulfill 144:4 150:13 fulfills 129:5,6 197:3 fun 272:12 function 59:22 73:8 87:3 91:10 92:9 103:13 105:20 110:19 143:13 148:3,23 150:8 153:15 161:1 168:11 170:22 184:12 193:13,17 194:9,21 195:15,21 232:1 255:22 290:7 317:9 328:23 330:15,17,19 functional 75:22 functioned 71:7 functioning 282:18	functions 6:15 61:9 68:15,15,17 69:2 69:21,21 70:1,11,15,16,19 72:8,20,23 73:2,2,3,22 74:12 82:18 102:21,25 103:2,3,7 107:15,17 111:17 111:19 112:5,9,12,19,23 129:1,6 136:9 150:10,13 160:9 162:8,10,17 167:25 174:20,24 182:8,13 196:13 196:17,23 197:3,5 236:8 309:14 317:11 328:23 fundamental 24:15 fundamentally 329:3 funding 177:6 funds 177:2 307:25 341:21 343:12 fungible 245:22 further 48:16 86:21 181:15 182:3 184:5 187:7 196:10 303:12 343:20 345:13 furthermore 99:20 future 26:7 67:2,9 119:10 278:10 305:16 g g20 206:5 gain 136:11 gained 166:24 167:25 gap 18:9 gar 275:9 garlinghouse 1:8 2:8 5:3 275:6,10,23 321:8,12,21 324:10,23 garlinghouse's 323:6,9 garrison 5:14 gathered 48:6 gathering 176:18 general 36:9 58:8 63:13 66:15	general (cont.) 67:16 68:22 71:4 90:10 93:8 99:25 101:2,6 135:8 137:16 170:23 199:24 229:21 270:20 271:16 272:19 276:15 297:8 334:6 340:8 343:17 generally 27:8 63:10 66:22 67:10 78:23 90:23 98:25 99:14,18 101:21 115:17 136:3 143:7 167:23 230:3 252:20 271:2 328:16,20 329:1,15 generals 55:5 generated 236:13 generating 320:6 george 79:9 german 100:10,22 germany 97:15 getting 188:4 244:20 289:15 302:22 309:7 312:9 gift 44:21 give 13:12 21:12 38:5 48:24 62:22 66:23 70:10 71:15 73:14 87:9 98:6,21 151:3,4 212:6 234:1 263:1 277:17 296:8 324:10 325:13 given 25:21 26:5,6 27:15 39:1 41:16 115:14 238:3 263:5 289:8 294:12 295:2 gives 289:2 giving 151:17 glad 38:16 180:8 glendale 10:19 global 134:5,7,9,19,20 135:1 197:23 198:12 226:19 go 12:4,13,21 13:12,13 19:21 29:1 34:19 40:23 48:16 49:2 64:23 76:21 86:20 91:25 104:14 111:14
--	--	---	--

[disagree - economy]

disagree (cont.) 330:24 331:8 332:14 333:7 334:9,14 335:4	dissertation 34:15	dollars (cont.) 310:10 315:18,19 317:6,10 317:16,23,25 318:1,4 330:8 339:12	duly 11:5 345:6,10
disagreeing 297:3 298:15	dissolution 247:20	domestic 255:10	durability 168:24 169:11
disagreements 85:4	dissolved 248:1,3,5	dominant 142:17 315:15	e
discernible 269:22	distant 23:13	dominant 7:9,18 46:1,2,4,5 47:6 135:21 192:6 202:8 263:17 264:1 266:5,15 269:4 271:23 286:17 295:24 296:5 298:11,15 299:11,20 299:22 307:6 309:9 314:17 315:6,7 319:23 320:3,11,21 320:21 321:3,5,6 323:8,15	earlier 44:17 135:22 147:19 153:16 160:7 172:8 174:12 174:24 176:11 188:25 227:24 290:16 307:17,18 312:25 316:8 322:1,4,21 324:9 326:10 331:15 332:2
disclose 70:5 71:16	distinction 89:10,15,19 294:1	double 263:24 265:1,14,23 267:8 267:10 285:13 286:12 287:25 290:2 293:25 295:19 308:8,13 309:24 320:6 321:12 323:24	early 18:21 49:20 54:19 210:22 211:3
disclosed 249:12	distinguish 267:14	dots 197:7 265:19	earth 67:1
discontinued 137:5	distributed 66:24	draw 71:14 112:16 128:7 198:11 268:17 280:1	easier 103:3
discourse 76:15	district 1:1,2 2:1,2 10:14,15	drawn 112:6,20 199:13 331:11 335:6	east 305:11,14
discovery 31:18 47:19,19 55:13,16	divergence 82:25 84:18	drawn 112:6,20 199:13 331:11 335:6	eastern 100:14
discuss 17:24 20:3 21:3,5 56:14 59:6,9 60:10 157:10,14 163:16 197:19 242:6,9 250:8	dividends 67:12	drawn 112:6,20 199:13 331:11 335:6	econ 82:22
discussed 21:14,17 58:23 111:18 153:16 160:7 171:1 174:24 227:14 301:1 307:13 315:15 343:16	divisibility 144:5 145:24 147:20	drawn 112:6,20 199:13 331:11 335:6	economic 59:21 85:7 174:20 176:8,13 270:20 280:22 284:1 295:19 298:16,17,22 301:3 324:3 338:17 342:25
discusses 68:3 77:9	divisible 151:25 152:1	drawn 112:6,20 199:13 331:11 335:6	economically 59:25 61:21 267:12 268:3,4
discussing 64:3 84:17 101:11 194:8,20 207:20 230:13 243:13 301:8 309:24	document 13:6,7,8,10 41:12,25 232:5 234:12 251:15 276:12,23 277:8 278:17	drawn 112:6,20 199:13 331:11 335:6	economics 15:12 26:4 64:15 268:21
discusses 68:3 77:9	documents 9:20 40:21 45:21 47:15,16 47:18 54:19 55:1,6 56:23 57:2,8 58:4,5,9,10,21 59:8 76:4 240:3,4 249:3 310:21 320:12,16,17 323:16	drawn 112:6,20 199:13 331:11 335:6	economies 283:2
discussing 64:3 84:17 101:11 194:8,20 207:20 230:13 243:13 301:8 309:24	doing 33:15 155:18 235:16 284:18 289:4 315:19 325:23 337:21	drawn 112:6,20 199:13 331:11 335:6	economist 43:13 77:12 81:24 82:6 84:12 108:17 109:6 112:17 160:14 278:20 333:21 336:2
discussion 21:20 22:6 30:25 70:15 80:11,15 82:21 145:17 147:14 148:1 195:19 214:24 227:20 246:7 294:4	doll 316:9	drawn 112:6,20 199:13 331:11 335:6	economists 26:2,3 77:17 79:18 80:8,16 82:16 83:10,16,21 93:19,24 94:8 100:6,19 101:1,22 102:15 106:12,13 108:24 109:7,13 110:3 112:10,21 129:2 140:12 142:21 143:3 144:17 149:5,11,12 158:16 158:25 160:25 161:5 171:17 176:15,19,22 184:14 195:20 196:14,22 210:17,24 244:3,14 272:19
discussions 55:21 56:2 221:10	dollar 122:19 128:6 132:14 133:7 133:14,15,17,18 140:25 171:11 192:12,15,15 255:14 257:18 287:5,9 290:11 294:25 295:6,15 298:2,5,6 301:25 303:22,25 304:22 310:20,21,22 311:1 315:13,16 317:9,15 331:19 334:12,16	drawn 112:6,20 199:13 331:11 335:6	economy 91:9 92:23 93:9 98:9 99:1,4 135:18
disentangle 161:21	dollars 43:21,23 122:25 123:4 132:18 190:2 219:17 231:7 256:13,17 288:9 289:18 290:18 299:15 300:3 301:14 302:16 303:2	drawn 112:6,20 199:13 331:11 335:6	
disinterested 345:11		drawn 112:6,20 199:13 331:11 335:6	
dismissed 40:6,8		drawn 112:6,20 199:13 331:11 335:6	
dispute 191:6		drawn 112:6,20 199:13 331:11 335:6	
disputing 310:1,2		drawn 112:6,20 199:13 331:11 335:6	
disruptive 119:5 210:15 243:15 244:15 248:20 251:20 253:16 301:3 305:23		drawn 112:6,20 199:13 331:11 335:6	

[highlighted - independent]

highlighted 100:5 112:10 114:16 128:1 129:4 200:13 207:10 227:10 231:23 289:10 330:18 331:15	host 304:6	identifying 149:24	impute 207:5
highlighting 129:8 130:10 135:21 205:19 218:24 281:18 286:11	hour 50:17	ignored 232:2	inaccurate 72:6
highlights 77:7 143:12	hours 47:4	ignoring 277:9	inadvertent 258:8
highly 9:15 42:3 147:24 314:14	huge 291:18,21 340:6,8	ii 93:22 94:6 97:15 100:10	inappropriate 197:9
hired 71:2	huh 31:8 34:10 48:19,22 66:14 78:7 89:22 90:7 95:2 121:7	iii 74:8,10,15 75:12 76:7	include 23:11 35:10 43:4 52:1 57:13 69:1 77:23 80:18 113:15 126:11 133:6 144:19 153:13,22 154:9 155:21 227:6
hirsch 4:6	hundred 170:25 171:10 270:5 271:19 277:2	illustrate 58:6,7 106:16 107:16 144:7 144:9	included 23:21 51:22 52:5 57:14 58:10 116:21 127:11 131:17,22,24 143:18 145:22,25 148:20 225:19 281:24 337:3
historical 76:15	hundreds 94:14 95:3 114:20	illustration 94:3 146:1	includes 110:20 134:10 143:6
historically 164:24 165:4 293:7 338:13	hurt 325:12	imf 134:10,12,17,23 135:4	including 34:9,14 83:9 112:10 133:4 148:24 243:19 303:13 309:20
history 15:4,5 83:10	hypothesis 279:21	impact 8:4 232:15 279:12 280:12	income 207:14
hold 85:17 103:20 123:13 136:5 139:11 156:4 189:2,5 277:21 283:13 311:5 313:13 333:22	hypothetical 92:20 94:24 96:21 105:9 139:6 147:1 190:9 191:13 229:21 270:18 271:8 272:23 278:13 313:6	implications 297:20	incomplete 60:16
holder 115:16	hypothetically 92:6 123:12 130:9 138:23 181:24 183:25 188:13 211:4 268:7 270:9 301:6,9	implicit 105:25 285:13	inconsistent 251:10
holders 189:3	i	implicitly 127:11 130:2	incorporates 8:11 254:25
holding 139:1,2 283:10 314:9 317:22	idea 90:8 106:1 212:14 248:23 293:8 298:11	implied 95:15 97:14 100:3 106:5 187:13	incorporating 255:6
holdings 274:15,24 275:11,24 276:9 277:5,12 278:3,4	ideal 192:23	important 23:8 26:11 33:15 45:21 53:13 75:18 80:2,9,19 81:17 83:22 84:13 87:24 89:7,9,14,18 99:21 101:2 103:12 135:24 144:1 152:12 161:2 182:15 191:2 201:18 210:13 211:7,19 230:4 233:15 241:22 243:17 250:16 251:14 283:2 292:23 299:19 305:6 305:15,21 337:11,12	incorrect 105:10,14 191:7 293:25 294:4 298:13 299:12 323:16
holds 104:4 192:25 193:4	ideally 226:18	impose 190:2	increase 270:11,24 273:3 278:9 282:17 293:15
honest 175:9 195:4 197:8,9 232:3	identification 14:8 174:8,13,15,17 175:20 175:22 223:25 232:10 237:19,24 254:7,10 260:7 263:12 264:19 296:23	implies 331:17	increased 266:19 273:21
hong 126:12,14 301:22	identified 106:25 129:1 145:13	imply 91:7 330:16	increases 234:21
hope 46:10 183:9	identifies 141:12 142:17 238:21 295:24	impossible 183:5 188:1	increasing 271:24 273:7
hoped 200:1	identify 76:4 112:11 115:13,15 205:17 249:2	impotent 248:21	increasingly 134:23
hopefully 180:17		impression 278:3	incurred 51:6 242:2
horizon 192:11,14,18,22,23 193:2 310:11,17 311:3 331:18,20 332:8			independent 146:3 166:22
horizons 192:10 279:25 281:23,23			

[independently - jberg]

independently 170:15,17 173:5 181:9	inherently 236:15	intention 165:6 277:13	investment (cont.) 249:8 320:7
index 6:1 9:1 10:12	initial 14:15,16,20 51:22 54:18 56:19 59:19 64:8 119:14 139:13 195:3 213:14 227:19 243:10 244:20 263:5,20 264:9 265:23 298:1 320:21	intentionally 110:1	investments 323:19
indicate 111:19 141:11 155:17 168:19 201:12 246:1 293:24 314:13	initially 119:7 266:18	interbank 307:5	investors 156:6 285:15 321:9,17 322:5,10,14,18 323:3
indicated 3:1 50:10 117:23 127:20 150:15 201:14 244:23 249:7	initiative 8:13 197:23 198:13 255:1,8	interchangeably 88:24 89:3,12,24	involve 45:3,7,10 198:4 228:4 302:16 341:6
indicates 117:9 190:20 255:13 258:16 285:11 295:20 298:16	innovation 119:5 244:15 301:3	interest 67:10,12 160:21 196:4 274:14,23 276:8,18 277:5 320:6	involved 17:18 26:5 122:18 123:19 123:21,25 124:7 183:21 220:25 234:16 235:7 300:2 300:16 315:17 316:1
indicating 130:17 251:6 277:11	innovative 248:20	interested 13:7 25:20 58:13 151:5 196:21 277:16,20 291:5 322:6,22 345:13	involves 61:3 123:15 339:2
indirect 288:21 290:6	insiders 275:4 276:15,18 277:20 278:1,2	interesting 93:15 116:3	involving 66:13
indiv 79:15	insight 134:5,8,9,19,20 135:2 282:3	intermediate 105:3	irrational 282:22
individual 30:9 38:24 125:14 172:5 173:22,23 217:14 294:22	insights 79:2	international 18:25 118:24 238:23	irrelevant 31:7 189:8,12 327:15,20,22 328:8
individually 119:25 125:14	insofar 128:25	internationally 44:23,24	island 144:14
individuals 30:1 74:18,19,25 75:11 82:10 100:8 217:7 274:14 274:23 276:8 277:4,12,19 278:9	instance 53:20 337:23	internet 165:18 171:7,19,23	islands 100:16,17
inexpensive 215:15	instant 258:18	interpretation 322:21	issuance 46:23
infer 259:17	institution 219:7	interpreted 42:2 297:19	issue 35:25 37:3 54:21 269:4 297:11 325:8
inflation 292:25	institutions 220:11,13,16	interpreting 323:9	issued 14:17 38:20 53:7 54:18 56:16 115:8 120:4 243:10
influence 267:12 268:5 269:22 270:7 272:15,21 280:4,19 281:21	instruct 60:10 70:5 163:16 242:13 261:3	interrupt 292:11	issues 37:8 295:24
influenced 337:25	instructed 163:20 164:1	intraday 204:13	item 91:14 337:20
information 15:1 24:15 25:21,22 26:9 26:12,13,21,23 27:1,4 48:7 63:4,16 71:1 115:12 164:15 166:12 167:19 168:25 169:25 170:1,7,16 171:15 171:22 173:8,24 174:3 199:12 200:6 204:11 209:5 215:20 233:11 302:13 303:6 306:15 307:2 309:2 337:10	instructing 179:17	intrinsic 140:6,9,21,25 141:5 146:2 146:7	items 114:5,6
informed 22:16	instruction 63:13 155:24 242:15	introduce 213:17 214:2	j
	instructions 261:20	introduced 209:12	january 191:1
	intelligence 201:8,10	introduction 238:24	jap 208:13
	intended 44:11,20 78:25 79:2 109:20 109:21 110:4,10 143:1 147:19 162:16 245:23 246:16 257:5 266:1	intuitively 133:12 166:1 169:9	japan 116:22 125:19,22 126:13 126:15 208:18 301:21
	intending 33:25 148:3 310:3	invalidates 285:13	japanese 91:16 190:15 297:25 303:14
		inventory 313:17	jberg 4:25
		investing 42:21	
		investment 38:3 122:7 139:12,13 155:21 157:24 246:17	

[jersey - lion's]

jersey 2:21 15:24	know (cont.) 82:3 84:22 85:16 86:2,14 86:15 87:16 93:17 94:7,21 95:19 96:15 98:3 108:16,17 114:6 116:8 117:2 121:16 121:20 123:14,24 124:9 125:3,9,16 126:21,25 130:7 130:20 137:4 138:2,9,16 139:6,11 140:4 142:19 144:4 146:21 155:8 158:15 158:22 160:18,24 161:5 168:6,14 169:17 171:25 172:6,14 177:5,6 182:11 184:14 185:23 187:20 189:3,6,13 196:9 197:2,4 199:7,17,19,22,23 200:20 200:22 204:19,20 211:16 211:17,18 215:11,22 217:19 218:4,9 220:1,16 230:22 231:20 233:18 235:13 237:8,10 241:2,6 242:19 244:14 245:13 252:4 263:6 268:15 275:20 277:8 278:16 282:14 283:3 283:17 285:6 290:1 291:1 297:5,5 298:6 300:9,13,14 300:15,15,22 302:5,12 303:9 304:19,24 306:16,21 308:18 309:6 314:7,10 317:16 318:21 319:3 326:19 331:7 333:19 334:13 335:4,14 343:10	labs 1:7 2:7 4:2,14 10:12	ledger (cont.) 203:14,16,24 214:24 215:15 233:5 234:14,15 236:1,8,18
job 1:25 83:5 85:2,6 99:21 233:17		laptop 53:17	ledgers 166:21 234:16
joint 219:8		large 95:21 96:1 186:24 188:15 189:20 190:2 192:16 282:6 282:17 283:25 304:21	ledger's 202:4
jones 65:12		largely 129:5	left 265:25 266:2
judge 42:1,3		larger 208:3	legal 10:17 60:7,14 61:12,25 70:21,22 71:8 79:19 87:17 88:13 137:19 333:1,13,18 333:19,21
judgment 40:11		largest 326:13,17 327:9 328:3	legalities 220:18
jurisdiction 137:19		larsen 1:8 2:8 5:12 275:5,9,23	legalized 334:16
justice 69:13		late 302:22	legitimate 76:23 77:3 83:13 84:12
justin 4:18		law 36:5 43:20 50:5,8 54:15	length 20:6
k		lawrence 6:23 238:19	lengthy 179:5
keep 117:19 210:13 253:5,8 277:8 287:21 295:6 327:25		lawyers 53:22 69:24	lens 25:23
kellogg 4:16 50:9,11,13 54:13		lay 76:17,20	lerner 79:12,14
kelloggghansen.com 4:24,25		layman's 68:8	letter 50:3 173:14
key 250:11		layperson 78:13	level 250:15
kind 15:1 201:18 223:8 230:2,3 252:3,11 256:22 283:18 286:24 307:6	knowing 43:13 188:5,19 196:21 197:5,6 203:23	lead 285:15	liberty 5:7
kindle 109:3	knowledge 64:17 83:9 99:24 210:5 236:11,13 303:19 304:20 312:4	leading 22:2 91:1	licensing 212:17
kinds 153:22	known 94:1 244:15,17 272:20 288:25 297:10 324:5	learn 54:20 106:13 119:18 167:3 168:10,25 169:6,17,24 200:23 235:6 241:10 242:1 242:24 243:9 246:20 249:15,15,16,17,23	limit 63:2 99:3 171:11
kingdom 132:13	knows 26:6,21	learned 164:9 167:9 170:16 171:5 171:16 194:12 195:8 198:9 201:3 235:14,22 236:4 241:19,20 243:7 250:4,5	limitation 267:10 268:10 270:2,6,25 272:2
knapp 79:9	kong 126:12,14 301:22	learning 117:20 120:2	limited 60:16 153:5,6 167:13,14 169:12,15 280:4,19
knew 215:19 235:9,11 243:11 245:19,20,20 248:12 249:1 250:22,24	korea 301:23	leave 69:14 300:14	limiting 123:22 272:24
know 12:22 13:1 14:10 16:10 20:17 25:2 31:9,11 32:4 33:15,18 34:23 40:10 41:11 41:15 45:8,12 48:24 50:14 50:15 51:10,14 53:5,8,10 53:11,11,15 54:9,12 55:7 56:9 58:13 61:1,2 63:21 66:7,25 68:3 75:20 78:1	krone 303:14	leb 4:4	limits 267:19
	kusimba 77:6,12,13 78:6,8	lecture 263:1	line 9:4,11,16,21 169:14 315:8
	I	ledger 66:24 115:12,16 166:3 167:2,4,9,12,17 173:10,14	links 30:10
	labeled 70:15		lion's 321:17

[liquidity - mastercard]

liquidity 7:22 29:7,9 59:25 61:20 224:9 225:3,16 226:15 293:4 311:18,23 312:12	logically 181:21	loses (cont.) 138:9	majority 94:8 122:6 299:13 304:21
lira 334:22,22	lombardozzi 1:24 2:19 11:2 345:24	losing 117:20 138:14 207:12	319:7
list 31:1,9 35:23 55:8 57:8 58:24 77:5 117:3 125:17 143:6,19 149:8 339:21	long 19:6 20:18 30:8 47:1 49:11 154:13 155:17 167:14 169:14 192:24 197:14 204:18,19 270:1 272:3,10 317:16 318:3 319:3,21 325:11	lost 136:20 137:24 138:3 228:8 302:22	maker 127:5,12 219:24 229:10 311:12 312:24
listed 19:11 32:6,12 35:8,16 36:15,20 39:13 55:2,7 57:3 58:5,5 76:6 143:5,6,7 168:14 174:3,3 191:22 200:15 238:4 252:1 337:17	longer 138:18 192:18 193:4 204:23 239:8 283:13 311:5 313:14 319:13	lot 23:2 33:18 75:17 126:12 143:4 187:12,16 195:6 221:2,10 233:13 234:23 236:15,17,18 275:10,20 276:15 332:20	makers 309:21 310:4 311:18,23 312:6,12,15,18 313:2,9,12 313:18 314:8
listen 108:11	look 31:1 34:17 37:7 40:5 48:13 55:8 59:15 73:24 133:20 141:10 145:5 147:2 175:3 175:13 180:8 186:14 190:5 196:2 203:1 204:16 209:7 212:9 220:22 224:2,21 232:4 237:23 238:25 240:18 246:6 248:11 258:11 263:14 274:5 278:19 279:6 285:7 293:23 299:3 302:25 303:5,11,12 305:6,21,24 306:6,7,10,11 307:3 309:8 313:20 314:11 319:20 320:25 321:4 325:4 325:20,25 332:4	lots 322:5	making 43:25 60:1 127:13 182:16 222:21 278:25 281:10 309:17 313:16
lists 73:1 101:15 107:11	looked 41:17 46:11 48:12,23 57:9 57:13 58:14 59:8 72:8,9 73:23 116:20 117:13 131:5 134:5,11 175:10 177:5 193:11,20 196:4 198:19 202:10 216:12 219:10 224:16 330:13 335:13	loud 74:10 204:25 267:6	malaysia 301:21
literature 26:4 70:13,14,14,19 76:2 77:8 95:15 97:12 99:24 101:9 195:7,19 219:10 273:14 280:21 299:1 326:11	looking 19:17 23:12 31:16 48:8 73:21 74:7 102:25 191:13 196:6 202:2 226:5 247:18 281:25 282:24 303:7 305:4 332:1	louis 6:15 101:15 107:1,5,15,20 108:1,24 109:8,12,14 141:21 143:5 174:19,25	manage 110:19
litigation 35:16 40:1 54:10 168:1 240:3,5 242:23	looks 26:12 31:16,22 133:23 238:19	low 93:16,18 100:4 153:2 186:6 207:14 216:4 227:4	managed 283:1 287:1
little 49:2 51:3,20 85:25 117:19 117:22 153:12 156:14 204:22 212:19 213:1 214:9 225:7 279:11 289:7 303:12 305:19 333:17	loose 289:7	lowdown 174:20	management 33:19 183:8,20 184:16
live 11:22,23	lord 285:22	lower 99:3 208:1 216:19 218:17 218:20 331:22 343:7	mancinelli 38:5,11,18,21 39:2
lives 25:4	lose 136:12,15 139:10	lunch 159:3	mankiw 107:16,20,21
living 100:17	loses 135:13,18 136:1 137:13	luncheon 159:9	march 206:11 238:19
llc 38:3		m	marked 9:15 14:4,7 174:7 175:19 176:1 223:24 224:2 232:9 237:18,24 238:11 254:6,9 260:3,6 263:11,15 264:18 264:21 296:15,22 325:4
llp 4:3 5:14		macro 64:14	market 20:25 23:16 29:5 31:23 127:5,12 219:24 221:5 229:10 244:21 248:23 253:4 270:23 282:18 291:15,16,24 293:15 303:20 309:20,21 310:4 311:12,18,23 312:6,11,14 312:18,24 313:1,2,9,12,16 313:18 314:8 315:14 318:6 319:4,5 321:20 324:13,19 324:25 330:6,14
load 33:21		macroeconomic 21:1	markets 18:14 24:2 31:18 127:13 231:24 232:1 267:20 270:20 271:16 310:24
located 10:20,21		macroeconomics 21:3 43:14 89:9 269:20	massachusetts 11:23
location 67:1		macroeconomist 18:24,25,25	massive 305:10
locations 125:11,25 258:19		magnitude 96:2 117:17	mastercard 335:9
logical 62:3 301:1 320:3 324:4		mail 4:10,24 5:10,19	
		main 35:1 102:16,25 316:1	
		maintained 166:22 252:18	
		major 26:3 119:8 190:13 304:22 326:14,18 327:9 328:3 335:8	

[master's - money]

master's 15:22,23 16:1,2,5	measured 104:22 114:19 219:17,18 280:3,12	mexican 8:10 124:23 241:3 254:24 255:15 256:13,18 317:7,10 317:13,16	mischaracterizes (cont.) 277:23 291:9 323:12,21
material 178:4 237:13 337:24	meat 294:8	mexico 255:11,21 256:2 306:22 316:3,12 317:2	mislead 331:25
materials 47:24 48:23 57:9 58:14 168:1 337:1,3,9,16	mechanism 211:23 235:7 236:16 257:17 318:17	mg 240:9	misleading 99:9
math 304:15	mechanisms 234:16	michael 160:15,18 161:14	misperceived 308:21
mathematically 321:18	media 94:2 247:15,18,19 249:12 249:12	micronesia 143:16	misrepresents 72:7
math's 35:1	median 298:12	microstructure 31:23	missed 303:18
matter 10:10 14:15 47:8 60:14 61:25 62:14 69:9 85:22 88:13 108:25 234:24 270:1 272:3,4 328:8 342:25	medium 81:17 90:9,11,25 91:3,6 92:1,4,9,17,25 102:17 103:13,19 104:3,9 105:20 105:25 113:12 114:10,12 114:13,17,22,24 125:4,4,25 172:1 173:13 257:7 326:5 326:15,20 327:10 328:4 330:19 333:14 335:8	mid 49:8 52:2	misses 334:20
matters 23:9 35:10,23 37:25 109:6 271:19 286:23 329:3	meet 46:13,16 211:9	middle 180:9 186:23 207:14 212:16 307:4 312:24 333:5	missing 258:3
matthew 4:6	meetings 46:25 47:2	million 96:3,6 100:13,18,20,21 101:20 207:14 246:13 249:8,18,24 250:6,23 251:2 268:8 329:14	misstate 204:14
maurice 36:20	member 110:18	mind 48:15 55:3 67:7 77:21 125:18 136:19 150:2 153:23 168:15 175:15 186:5 210:14 217:5 218:23 267:6 272:9 275:7 308:18 318:18 323:6	mistaken 299:11
max 268:9	memory 168:17	millions 114:18,21	mistakenly 83:25 299:22
maximum 100:8 268:9 321:19	menger 81:25 82:3	min 101:19	mistakes 263:2
mean 17:5 26:16 66:16 67:5,8,13 68:6,9 69:14,23,25 83:20 84:10 91:6 113:15,19 124:11 127:22 140:11,18 145:23 150:11 154:1 172:5 184:23 185:12 186:1 211:14,24 212:5 224:18 252:10 269:13 270:17 279:8,18 281:4 285:19 288:6 305:24 312:14 331:7 341:20	mention 18:17 20:8,10 128:5,6 143:22 246:23 332:23	mind 48:15 55:3 67:7 77:21 125:18 136:19 150:2 153:23 168:15 175:15 186:5 210:14 217:5 218:23 267:6 272:9 275:7 308:18 318:18 323:6	misunderstanding 12:22 157:15 314:18
meaning 138:25 147:19 237:9 266:15 281:23	mentioned 56:19 97:18 117:12 125:17 125:19,20,21,22 126:23 135:5 203:17 223:17 339:23 341:23	minimum 101:19	misunderstands 309:12
meaningful 188:11 294:1	merchant 172:14	mining 8:5 232:15	misunderstood 12:24 194:18 308:21
means 104:3 150:12 160:12 173:12 273:16 315:17 331:9	merchants 171:25 172:6,10,21	minute 21:16 57:6 84:3 156:22 185:20 192:11,14,17,22 193:1,4 202:6 283:11 287:2 287:2 313:14 325:14 331:18,20 332:7	mjhirsch 4:12
meant 154:1,9 162:16 187:21 188:5 245:4 337:8 341:24	merits 40:13,24	minutes 65:13 202:6	model 330:22
measure 332:21	message 207:3,6,7,8	mischarac 193:25	models 278:23 280:22 281:4,11
	met 70:20,22 71:8	mischaracterization 99:13 148:9	moment 34:21 36:25 62:8 88:11,19 151:2 153:1 201:21 240:20 242:18 253:7,7,10 263:14 287:20,21,23 336:9
	method 160:12	mischaracterize 277:7	moments 117:24 119:12
	methodology 40:21 41:12,18	mischaracterizes 41:5,7 72:4 86:23,24 99:8 139:21 148:18 156:9 171:9 202:18 222:17 276:12,22	monetary 16:7 19:3 64:15 110:19 160:22 288:20,23,24 289:6

[money - number]

money (cont.) 91:13 93:7,20 94:3,5,6 95:11 100:7 101:3,11 102:15,17,22 103:1,2,8,13 103:21 104:6 105:20 107:16 110:20 111:5 112:19,23 129:9 143:13,17 143:19,21 144:6,13,22 145:13 147:9,11 149:14,18 149:19 150:7,10,13 160:10 162:17 174:20,24 184:12 184:15 193:13,13,16,17 194:9,22 195:15,21 196:24 197:3 208:1 209:16 211:9 219:6 220:23 221:17,17 242:4 243:2,16 245:16,21 251:21 253:13 255:18 256:2,13,16 258:23 269:21 279:11 282:2 283:1,4 287:1 287:5,16 288:20,22,24,25 289:3,5,11,17 292:24 293:1 293:6 306:22 309:19 342:1	moves 250:12 moving 67:11 191:12 220:23 286:24 moye 3:9 6:4 11:9,15,16 13:22 14:9 17:21 27:24 28:13 40:8 56:1 62:25 65:10,13 65:21 102:7,13 139:25 159:2 160:4 174:9,16 175:15,23,24 179:14,24 193:16 212:14 213:3,11 224:1 225:21,24 226:3,9,12 226:13 232:13 237:22 238:6,9 241:21,24 244:7,22 245:2 254:11 258:6,10 259:19 260:1,8 261:5,12,22 263:13 264:20 275:16 286:5 296:25 299:6 313:21 314:6 325:11,15,17 336:8 336:17 340:21,25 341:7 342:13 343:22	nations 304:13 nature 17:23 21:4 25:22 26:12,13 61:3 67:23 69:10 101:18 105:25 128:10 167:1 169:10 221:6 236:16 245:22 286:22 309:12 313:16 328:9 329:11 nber 6:19 176:2 177:6,14,21 near 305:11,14 nearby 100:16 nearly 183:5 327:24 necessarily 58:24 241:2 323:25 342:11 necessary 76:22 77:3 83:13 84:9 99:25 133:18 144:2 need 12:25 13:8 39:24 43:15 66:7 88:22 90:17 91:23 95:10 98:5 123:10 138:15 154:5 161:20 179:6,11 197:8 204:20,24 207:19 232:5 239:11 244:18 253:7 266:9 272:7 283:6 284:8 286:3,21 304:1 325:14 needed 71:7 127:17 253:4 289:6 292:7,18 293:9 needs 105:20 179:21 184:15 210:16,18 211:9 222:4 244:2 252:19 negative 208:21 210:7 neglected 65:24 neither 76:22 77:3 83:13 144:2,2 295:21 network 119:6 200:2 210:18,19 244:19 246:7,11 301:4 320:5 networks 199:20 244:17 300:23 new 1:2 2:2,17,17,21,21 3:8,11 3:14,14 4:8,8 5:8,8,17,17 10:15,22,22 15:24 18:23 67:11 175:14 178:14	new (cont.) 197:12 213:17 258:12 345:1,3 newspaper 120:9 nick 38:24 nicole 5:6 nod 239:11 node 302:1 non 24:15 201:9 nondollar 310:25 332:12 noneconomists 25:14 nonprivileged 62:22 nonstandard 84:18 nope 285:8 normal 244:1,12,19 310:24 normally 68:17 northwestern 18:2 notary 2:20 note 238:2 258:2 259:2 326:17 noted 10:24 notes 77:5 notice 2:21 35:6 88:24 noticed 202:24 noting 328:8 notion 329:15 november 52:2 191:2 260:10 ntatz 5:10 number 6:8 7:2 8:2 10:13 33:14 94:4,15,16,17 95:17,20,21 96:22 99:3 100:4,8,9,20,21 101:20 122:11,16 172:9
moneygram 8:16 44:6 217:12,16 238:23 239:4 240:9 242:2,25 243:2 243:8 245:4,5,14,21 246:2 246:15 247:20 249:5,9,11 250:9 258:13,18,22 259:4 306:7,10 moneygram's 241:11,14 243:18 money's 160:25 month 31:13 49:14 269:23,24,24 279:13,13 310:14 months 49:18 200:14 250:3,3 morning 11:9 301:1 mountains 69:10 mousetrap 306:1 mouth 131:15 171:4 327:20 move 29:19 30:24 64:21,22 73:13 98:20 101:24 151:4 232:6 242:17 258:1 284:15 343:12 moved 259:8 movements 269:24	moyer 3:16 mpsi 241:2 multiple 203:9 277:24 multiplier 288:25 mxn 241:2,3 myriad 153:10,25 154:1 157:18 158:4 162:21 163:8 279:7 279:21,22 n n.w. 4:20 name 10:16 11:18 46:11 79:17 81:5,8,12 82:1 126:24 194:10 209:20,21,21 217:15 named 47:6 48:1 81:24 82:6 160:14 238:18 345:9 names 34:22 39:10 116:25 125:18 narratives 56:20 narrow 27:20 national 176:7,13		

[number - okay]

number (cont.)	objection (cont.)	objection (cont.)	odl (cont.)
192:9,10 198:24 214:2	134:15 135:15,19 136:6	318:10,15 319:14 321:23	284:19 285:4 292:8 293:10
218:21,23 219:3 227:25	137:1,7,15,21,25 138:5,11	322:3,11,16 323:4,11,20	293:16 299:25 300:1,16
234:2,4,12 237:25 238:11	138:20 139:4,14 140:13,22	324:15,20 326:8,16 327:7	302:4,14,15 303:1 305:22
266:6,18 267:11,16,19	141:7 142:4,24 143:10,23	327:12,18 328:6,12,18,19	305:22 306:12,24 307:2
270:3,10 272:2 293:11	144:23 145:19 146:5,11,16	329:8 330:9 331:3 332:17	309:13 311:4,18,23 312:6
304:12,13,13,16 307:17	146:25 147:16 148:6,17	333:15 334:1,4,17 335:11	312:12,16,16,22 313:7
331:5,21	149:15 150:5,20 151:6,22	340:21,25 341:7 342:13	316:2,10,13,22,23 317:2
numbers	152:16 153:19 154:10,24	objective	338:5,10,14,17,19 340:17
192:7,9 202:10 204:15	155:9,23 156:8 157:4 158:1	290:22	340:18,23 341:3,6,12,15,19
300:8 331:4 332:7	158:18,23 161:3,9,12,18	obstacles	342:9,12 343:2,8
number's	162:6 163:1,15,22 164:12	205:19	odl's
97:1	165:1,11,23 166:8,16 167:6	obtain	97:22 222:3 253:15 304:24
nyu	168:3,12 169:2,7 170:3,10	312:18	offer
178:18	170:20 171:8,20 172:3,16	obtained	62:3 63:8 85:9 86:11,12,19
o	172:25 173:6,20,25 175:6	206:4 233:11 277:18	86:25 87:7 155:2 265:13
object	176:20 177:3,12 180:22	obvious	offered
335:5	181:5,16 182:5,19 183:14	15:17 36:15 133:12 166:1	35:12 173:2
objection	184:7,20 185:5,13 186:2	169:10	offering
12:11 13:20,21 16:21 20:14	187:9,22,24 188:8,22 189:9	obviously	129:20 155:5 338:12,16,18
21:9,21 22:7,11 23:5,17	189:24 190:17,24 191:8,20	13:9 31:6 241:5	office
24:4 25:17 27:5,10,16	192:20 193:23 195:22	occam's	3:8,11 10:20 217:18 227:8
28:18 29:13,20 30:5,16	196:7,25 198:21 199:5,15	324:5	officer
32:23 33:7 35:19 36:10	200:11,25 202:17 204:1,8	occasion	238:23
37:9,18 39:3,21 40:14 41:4	205:3 206:7,22 208:4,11,23	16:6 48:17 162:3 173:4	offices
41:22 42:7,15 43:9 44:2,13	209:1 210:11 211:11 212:3	178:20	2:16
45:16 47:9 48:3,9 49:15,23	214:15 215:4,17,24 217:3	occasionally	officials
50:25 51:7,13,16 52:8,16	217:23 218:7,12 219:14	178:3	77:24
53:24 54:4,23 55:24 56:6	220:5,8,15 221:12,14,19	occur	oh
56:24 57:11,21 58:17 59:2	222:7,16 223:2,15 224:15	15:14 293:16	28:12 48:13 74:5 84:3
60:6,22 61:11,23 62:6,16	224:20 227:1,22 228:6,13	occurred	116:24 120:6 139:18 141:3
62:23 63:11 64:11 65:5	228:16,21 229:5,19 230:10	39:15	172:19 205:5 214:17
66:5,19 67:18,25 68:11,23	230:20 231:12 234:8 236:2	october	219:16 221:21 223:3
69:7,17 70:4,24 71:10 72:3	236:9,25 237:5,7 239:9	14:17 49:21 54:19 115:9,18	263:23 284:9 285:22
72:16,24 73:10,18 74:22	240:14 242:12 243:4,21	116:3 164:17,22	okay
75:4,7,15,23 76:18 77:19	245:7,17 247:2,22 248:7,9	odl	10:5 13:14,25 14:17,20,23
77:25 79:7,21 80:3,10,21	248:16 249:19,25 250:10	61:20 92:2,3 97:21,23 98:5	15:7,17,25 18:11 19:13,16
81:3,10,19 82:12,19 83:3	250:17 251:8,13 252:6,22	114:19 115:2,14,19,25	19:21 20:2,12,23 21:6 22:1
83:17,23 84:14,20 85:1,12	253:20 256:3,19 257:21	116:3,9,16 118:14,14,16	24:14,18 25:2,5 27:13
85:19 86:9,17,22 87:5,13	258:25 260:25 262:20	119:1 126:11 127:4 173:14	28:20,22,25,25 29:24 30:13
87:19 88:3 89:4 90:3,12,20	264:11 267:22 268:13,23	192:23 197:20 198:3,17,20	31:12,16 32:9,16,20 33:10
90:22 91:11 92:11 93:3,13	270:14 271:3,11 272:5,17	199:1,3,14,18,22,23 200:7	34:17,25 35:5,14 36:13
94:19 95:12,23 96:12,17	273:4,24 274:25 275:12,14	200:16,23 201:12 202:14	37:1,22,25 39:16,25 41:9
97:3,25 98:13 99:7 101:4	275:25 276:2,11,21 277:6	202:23 208:19,20 209:9,21	43:6,24 45:6,24 46:3,5,8
101:12 102:19 103:5,15,22	277:22 278:11 279:2	210:1,2 211:5,8,15,18,19	47:1,5 48:15 49:2,11,19
104:7 105:6,12,22 107:6	280:14 281:2,7,15 282:8,13	211:20,21 212:2,17,25	50:2,13 51:3,11,19 52:4,12
108:4,19 109:9,17,23 110:8	283:15 284:4,21 286:19	213:18,22 214:3,10,12,21	53:19 55:12 57:4,16 58:12
111:6,10 112:1,7 113:7,17	287:11 288:11,17 289:21	215:7,11,21 216:21 217:21	59:10,12 61:17 62:2,11
113:25 115:3,10,21 116:12	290:12,24 291:8 292:1,4,19	218:11,16,25 219:12 220:3	63:5,17 64:1 65:9,15,19
116:17 117:7,15 118:4,11	293:18,20 294:16 296:6,19	220:11,12,23 221:6,8,13	66:10 67:8,15,22 68:3
118:20 119:21 120:19,22	297:14 298:20 300:4,11,20	222:14 223:7,8,13 224:13	71:21 72:11 73:7,13 74:1
121:10,22 122:3,8,13,20	301:15 302:9,18 303:3	226:24 227:14,20 228:3,3	74:14,19,24 75:3,20 76:7
123:6,16 124:2 125:6 126:2	304:8 305:1 306:3,8,18,25	228:10,23,24 229:8,9,25	76:16 77:1,15 78:3,14,18
127:2,9,24 128:16,22	307:15 308:1,11,22 310:6	239:6 241:12,14 242:3	78:25 81:7,14 82:5,15,24
129:22,25 130:11,22 131:8	311:7,25 312:7,13,20	243:2,14,18 244:2 245:5,15	84:2,17 85:8 86:20 88:22
131:14 132:20 133:1,10	314:21 316:5,14 317:18	246:2 248:15,20 251:19	89:2,14,23 90:1,4 91:5

[okay - oppenheimer]

okay (cont.)	okay (cont.)	opinion (cont.)	oppenheimer (cont.)
94:13 95:1 96:20 97:11	299:18 303:21 306:21	338:10,12,16,18	152:16 153:19 154:10,24
98:8,19 102:8,11,24 103:12	307:3,11 308:6 310:3 312:2	opinions	155:9,23 156:8 157:4 158:1
104:2 105:16 106:3,7,19,23	312:9 313:3,25 314:1,4,25	38:21,23,24 39:25 40:10	158:18,23 159:5 161:3,9,12
107:13,18 108:10,14 109:1	315:21 316:24 317:3,4,15	41:11 42:14 57:3 59:16	161:18 162:6 163:1,15,22
109:19 110:12,17 111:23	319:2,20,24 320:1,10,20,24	63:8,22 65:1 80:17,18	164:12 165:1,11,23 166:8
112:24 116:22 117:4,11	321:4 322:8,18,24 324:8,18	121:12 172:20 182:16	166:16 167:6 168:3,12
118:16 119:17 120:13,15	326:2 328:11 330:2 331:10	260:24 261:16,25 262:6,9	169:2,7 170:3,10,20 171:8
120:24 121:3,5,24 122:23	332:6,21,22 334:9,14	262:15,19 263:4 265:14,16	171:20 172:3,16,25 173:6
123:11 124:8 125:24 126:8	335:16 336:2,7,15,20 338:3	265:22 323:6 337:17	173:20,25 175:6 176:20
126:19 127:6 128:14	342:8	oppenheimer	177:3,12 179:10,16,20
129:19 130:14 131:4,10,20	once	4:17 6:5 13:17,24 16:21,24	180:22 181:5,16 182:5,19
131:24 132:7,12 133:2	46:11 239:5 248:24 278:2	20:14 21:9,21 22:7,11 23:5	183:14 184:7,20 185:5,13
134:21 135:1,5,11 137:10	291:19,22	23:17 24:4 25:17 27:5,9,16	186:2 187:9,22 188:8,22
142:1,8 144:18 145:11,15	ones	28:9,18 29:13,20 30:5,16	189:9,24 190:17,24 191:8
149:10 150:14 151:13	47:5 55:3 125:16 220:13	32:23 33:7 35:19 36:10	191:20 192:20 193:23,25
152:25 153:24 154:3 155:4	301:24 305:15	37:9,18 39:3,7,21 40:14	195:22 196:7,25 198:21
156:24 158:7 159:1,4,7	online	41:4,22 42:7,15 43:9 44:2	199:5,15 200:11,25 202:17
160:2,20,24 161:15 163:19	44:25 48:6,8 55:6,22 56:3	44:13 45:16 46:18 47:9	204:1,8 205:3 206:7,22
164:2,5,16 165:17 166:20	120:9,17 121:2 171:2 203:6	48:3,9 49:15,23 50:25 51:7	208:4,11,23 209:1 210:11
167:22 169:21 170:6 171:3	203:18,19 249:16	51:13,16 52:8,16 53:24	211:11 212:3,10 214:15
173:11,16 174:5,22 175:9	oops	54:4,23 55:24 56:6,24	215:4,17,24 217:3,23 218:7
175:23 177:1,20 178:11,17	130:13	57:11,21 58:17 59:2 60:6	218:12 219:14 220:5,8,15
178:20 179:3 180:6,9,20	oopsy	60:22 61:11,23 62:6,16	221:12,14,19 222:7,16
181:3,10,20,22 182:14	189:11	63:11 64:11,21 65:5,15	223:2,4,15 224:15,20
183:1,11,17,22 184:17	open	66:5,19 67:18,25 68:11,23	225:17,23 226:1,5,11 227:1
185:10,18 186:10,21 187:5	325:18	69:7,17 70:4,24 71:10 72:3	227:22 228:6,13,16,21
187:11,19 189:18 190:21	opened	72:16,24 73:10,18 74:22	229:5,19 230:10,20 231:12
191:4,12,24 192:3 193:6	272:25 273:20	75:4,7,15,23 76:18 77:19	234:8 236:2,9,25 237:5,7
194:6,11,25 195:10,18	operate	77:25 79:7,21 80:3,10,21	238:1 239:9 240:14 241:15
196:19 197:16 198:15	126:10 303:17	81:3,10,19 82:12,19 83:3	242:12 243:4,21 245:7,17
199:9,21 200:3,20,22 201:4	operates	83:17,23 84:14,20 85:1,12	247:2,22 248:7,9,16 249:19
201:11,20 202:2 203:1,12	235:21 255:7	85:19 86:9,17,22 87:5,13	249:25 250:10,17 251:8,12
204:24 205:7,10,11 206:12	operation	87:19 88:3 89:4 90:3,12,20	252:6,22 253:20 256:3,19
206:16 207:21 208:17	290:8	91:11 92:11 93:3,13 94:19	257:21,25 258:25 260:25
209:4,7 212:8,24 213:3,5,6	opine	95:12,23 96:12,17 97:3,25	261:10,14 262:2,20 264:11
213:9,12 214:9,23 216:21	66:8 71:7 88:14 117:16	98:13 99:7 101:4,12 102:5	265:5 267:22 268:13,23
219:4 220:21 223:11	155:2 268:15 323:5,8	102:19 103:5,15,22 104:7	270:14 271:3,11 272:5,17
224:11 225:1,14,23 226:12	324:22	105:6,12,22 107:6 108:4,19	273:4,24 274:25 275:14,18
228:2 230:6 231:19 232:24	opined	109:9,17,23 110:8 111:6,10	275:25 276:11,21 277:6,22
233:4,20 234:3 235:12,17	158:25	112:1,7 113:7,17,25 115:3	278:11 279:2 280:14 281:2
235:24 237:16 238:14,24	opinion	115:10,21 116:12,17 117:7	281:6,15 282:8,13 283:15
239:4,16,18 240:2,11,25	27:14 35:12,25 36:2,4 37:4	117:15 118:4,11,20 119:21	284:4,21 286:2,19 287:11
242:6,17,23 243:13 244:4	38:8 39:19 41:16 57:15,20	120:19,22 121:10,22 122:3	288:11,17 289:21,24
245:25 247:18 249:4,13	60:19 62:1,3 64:18 69:1	122:8,13,20 123:6,16 124:2	290:12,24 291:8 292:4,12
250:6,21 254:22 257:24	70:3 74:11 80:23 85:10,21	125:6 126:2 127:2,9,24	292:19 293:18 294:16
259:16,21 260:17,21	86:11,13,14,19 87:1,7,9	128:16,22 129:22,25	296:6,18 297:14 298:20
262:11 263:9 264:2,7,15	98:16 112:8 116:4 121:19	130:11,14,22 131:8,14	299:4,8 300:4,11,20 301:15
265:25 266:25 267:1,5,16	129:20 147:2,5 152:20	132:20 133:1,10 134:15	302:9,18 303:3 304:8 305:1
269:9 271:7 272:22 273:18	155:3,5 157:7,24 158:12	135:15,19 136:6 137:1,7,15	306:3,8,18,25 307:15 308:1
274:5,21 275:5,8,22 276:17	162:7,11 165:7,14 170:13	137:21,25 138:5,11,20	308:11,22 310:6 311:7,25
277:10 278:6,19 279:20	173:2 182:8,10 183:18,20	139:4,14,17,19 140:13,22	312:7,13,20 314:21 316:5
280:7 281:9 284:15 285:7	184:9,11 195:13,19 210:14	141:7 142:4,24 143:10,23	316:14 317:18 318:10,15
290:21 292:16 293:23	210:14 211:8 253:16,22	144:23 145:19 146:5,11,16	319:14 321:23 322:3,11,16
294:24 295:8,12,17 296:13	262:5 278:17,18 305:22	146:25 147:16 148:6,17	323:4,11,20 324:15,20
296:24 297:4,17 298:14,24	323:23 337:4,9,14,14,25	149:15 150:5,20 151:6,22	325:7,13 326:8,16 327:12

[oppenheimer - pause]

oppenheimer (cont.) 327:18 328:6,18 329:8 330:9 331:3 332:17 333:15 334:1,4,17 335:11 336:23 343:19	overall 73:4 219:1 230:5 297:4,6,7	pair 303:21,24 304:2,3	paraphrased 325:22 331:12
opportunities 189:14	overlooked 247:16	pairs 303:13,17 304:6,12,16,18 316:23 319:7	paraphrasing 293:24
opportunity 16:6,18 18:12 20:3 21:12 40:5 240:12	overseas 218:18	paper 6:19 24:16 25:13,15,20 26:12 27:2 28:8,16 30:4,9 30:11,23 66:12 67:3 93:19 94:9 95:17 108:3 110:13 167:10 176:2 177:25 179:11 195:8,13 235:15,15 309:3,6	part 32:9 41:20 157:10 181:10 187:17 213:14 222:24 225:19 227:21 228:24 230:4 243:25 244:13,19,24 246:3 251:15 261:12 262:17 278:7 328:13
opposed 320:5 343:13	overstating 171:3	papers 24:7,9,10 32:10,13,25 55:4 79:3 195:5,14	participants 91:8 99:4 309:20 313:2
option 60:1 61:21	overview 203:14,17	paper's 25:16	participation 15:6
orally 41:16	overwritten 233:14	paragraph 42:2 76:8 77:6 78:5 88:17 90:5 97:18 102:1 106:7,23 106:25 111:16 112:13 113:1 127:16,16 128:6,8 129:14 133:21 141:10 142:13 144:21,25 145:5,11 148:1 149:4,20,22 150:15 162:14 180:7,10 183:3 186:13,23 197:21,22 201:15 202:4,15,16,19,22 202:24 203:13,16 204:16 205:1,6,13,14 206:1,2 209:7 212:9,16,20 213:13 214:23 224:21 225:12 240:19,22 242:17 246:10 255:5 258:15 265:9 266:13 266:21,22 274:6,6,10 276:7 278:19,22 279:5,6 281:11 283:19,20 285:7,9,10,24 293:23 294:9,11 295:9,17 295:19 296:5 297:7,13,18 297:18,20,21 298:14 299:3 303:11,12 305:9 307:3,4 309:8,23 313:20 314:11 315:1,2 319:20,21 320:2 321:6 332:23 333:4 335:7	particular 81:12 82:16 137:18 165:21 168:18 169:20 207:25,25 235:14 252:24 253:1 270:6 292:8
oranges 317:20	owners 186:25 188:16 189:20 190:2	paragraph 42:2 76:8 77:6 78:5 88:17 90:5 97:18 102:1 106:7,23 106:25 111:16 112:13 113:1 127:16,16 128:6,8 129:14 133:21 141:10 142:13 144:21,25 145:5,11 148:1 149:4,20,22 150:15 162:14 180:7,10 183:3 186:13,23 197:21,22 201:15 202:4,15,16,19,22 202:24 203:13,16 204:16 205:1,6,13,14 206:1,2 209:7 212:9,16,20 213:13 214:23 224:21 225:12 240:19,22 242:17 246:10 255:5 258:15 265:9 266:13 266:21,22 274:6,6,10 276:7 278:19,22 279:5,6 281:11 283:19,20 285:7,9,10,24 293:23 294:9,11 295:9,17 295:19 296:5 297:7,13,18 297:18,20,21 298:14 299:3 303:11,12 305:9 307:3,4 309:8,23 313:20 314:11 315:1,2 319:20,21 320:2 321:6 332:23 333:4 335:7	particularly 280:24 331:5
order 43:16 47:25 48:1 61:10 90:11 91:7,10 95:10 106:3 117:14 169:24 179:12,21 211:25 242:25 287:21 313:10	ownership 220:17	paper's 25:16	parties 40:1 47:20 170:8 345:15
organization 177:24	owns 220:19 282:6 284:1	paragraph 42:2 76:8 77:6 78:5 88:17 90:5 97:18 102:1 106:7,23 106:25 111:16 112:13 113:1 127:16,16 128:6,8 129:14 133:21 141:10 142:13 144:21,25 145:5,11 148:1 149:4,20,22 150:15 162:14 180:7,10 183:3 186:13,23 197:21,22 201:15 202:4,15,16,19,22 202:24 203:13,16 204:16 205:1,6,13,14 206:1,2 209:7 212:9,16,20 213:13 214:23 224:21 225:12 240:19,22 242:17 246:10 255:5 258:15 265:9 266:13 266:21,22 274:6,6,10 276:7 278:19,22 279:5,6 281:11 283:19,20 285:7,9,10,24 293:23 294:9,11 295:9,17 295:19 296:5 297:7,13,18 297:18,20,21 298:14 299:3 303:11,12 305:9 307:3,4 309:8,23 313:20 314:11 315:1,2 319:20,21 320:2 321:6 332:23 333:4 335:7	partner 116:9
oriented 320:7	p	paragraphs 127:18 186:12,16,20 205:18 285:25 295:25 325:24	partnering 255:19
origin 302:6	p.m. 2:18 344:5	parallel 281:18 282:23,25	partners 8:16 116:15,21
original 259:10 265:1 275:3 296:11	pace 285:15	paraphrase 337:2	partnership 246:15 258:12
originated 320:13,18	pacific 116:25 126:12,13,13,17,17 300:23,25 301:7 302:15 304:25 306:12		parts 13:10 59:6 161:20 179:7 206:24 266:7
originating 302:17	packages 95:5		party 169:5 200:10
osler 1:16 2:15 6:3,11 7:14 10:10 11:20 14:1,7 33:3 45:13 65:22 102:14 160:5 167:22 174:7,22 175:19,25 203:21 206:17 213:12 223:24 232:9 237:18,23 254:6,9 260:2,6 263:11 264:18 267:18 296:22 299:6 314:7 327:21 328:15 330:23 336:18,24 344:1 345:5	page 6:8 7:2 8:2 9:4,11,16,21 19:17 31:2,4,17,21 32:13 32:16,16 34:19,19 59:15 66:2 68:20 73:25 74:1,2,4,5 74:6 102:2 106:7 111:14,16 127:15 162:13 178:6,11 179:8,25 180:5,7,10 185:17 186:10,13,14,18,23 190:6 197:20 202:2 213:15 224:9 225:1 226:7,14 232:24 233:13 238:4,5,11,15,16,17 238:20 240:19 255:4,12 258:5,16 265:8 266:13 273:18 274:7,8,9,9 285:9 307:4 321:4 325:24,25 331:10 332:3,22 335:2,16		patent 221:8
osler's 41:17	pages 6:12,17,21,25 7:6,11,15,19 7:23 8:7,14,18 204:17 225:19 325:19		patented 211:23
outcome 26:24 60:5 291:18 345:14	paid 42:23 43:1,7 44:22 50:23 51:6,21,25 52:14 67:10 219:25 221:25 245:21 314:8 338:13 342:15,24		path 82:1 194:5
outline 40:18			paths 183:17
outside 22:9			pause 88:20 180:3 186:17 201:25 205:9 240:21 242:20 254:20 286:6 315:4 319:25 325:9,16 336:14

[pay - positions]

pay 43:21 134:14 218:18 221:16 243:19	perform 129:4 182:12	philippines (cont.) 318:22	podcast (cont.) 174:20,23
paying 50:11 242:24 246:1 249:11 339:3	performing 290:8	phrase 57:4,16,19 216:1 246:14 274:8 282:24 285:20	point 40:4 45:11 58:8 59:8 133:13,14,17 138:25 144:25 145:11 146:1 158:8 172:9 192:16 197:9,11 205:12 207:18 221:21 242:1,23 243:7 246:4 250:2 250:13 288:3 295:9 309:24 310:2 334:20
payment 97:24 104:4 213:19,25 214:13,21 215:8,20 216:23 217:2 255:7 299:23 300:2 300:17 326:14,18 327:10 328:4 330:20 333:24 334:3 338:22 343:3	performs 180:13 181:25 182:10,17 182:23 184:12,13	phrased 92:19,21 129:10 316:19	pointed 116:7
payments 8:13 44:1 60:2 61:22 118:24 197:23 198:13 205:21 207:14 212:19 213:1 226:19 255:1,6,10,21 309:10 326:7	period 17:14 18:5,24 33:3 123:13 191:1 192:19 206:21 209:8 313:15	phrasing 84:4 90:22 99:16	pointing 258:9
pays 43:19,20,23 219:12 338:25 341:25 342:2	periods 269:17 283:14 311:5 336:5	pick 126:22 163:20 208:6	points 12:4 79:16 204:25
peer 78:15,16,20	permanently 321:13	pickup 258:18	policies 34:1
pending 12:13,15 13:2 296:14	person 26:21,23,25 27:12 46:16 55:22 56:3 62:3 91:18,19 92:7,7 97:23 104:19 108:18 124:12,13 129:17 219:6 222:6 299:10 307:24 341:20,25 342:1 345:11	piece 100:6 141:22,23 144:17	policy 110:20 160:22
pennsylvania 15:11	personal 42:12,20 43:24 231:2,21	pinpoint 247:25	polynesia 144:15
people 36:22 66:16 76:17,20 91:9 92:23,23,25 93:1,9,11 95:9 95:21 98:9 99:4,25 100:10 100:13,17,21 110:3 114:13 114:15 135:17 136:4 137:12 139:1,11 146:10 155:21 156:4,17 157:1,22 189:2 207:12 236:23 276:14 278:1 282:19 283:10,12 284:18 291:21 293:5 312:16 322:5 329:14	personally 20:13 124:11 125:24 140:18	pinpointing 219:3	poor 207:11
percent 117:25 118:8,14 120:23 121:5 130:16 192:14,16 207:16 216:2 217:18 219:19 221:23,24 233:6 291:3 307:8,13,17 310:12 310:13 331:17 334:23	person's 79:17	place 159:3 163:5 178:4,8 215:5 228:15,19 247:16 250:7 302:7 321:15 324:4 337:19 345:8	poorly 129:11 180:13 181:25 182:24
percentage 291:4 300:1,16,19 304:24	perspective 59:22 337:12	places 205:24 337:24	popular 32:5 79:1,3
percentages 119:13	peso 92:5 298:4 303:22	plaintiff 1:5 2:5,16 3:4	population 100:5
perfect 290:4 296:25	pesos 91:17,21,23,24 92:3,8,24 93:1,1 97:17,20,20 104:15 104:17 105:2 123:19,23 124:6,10,23 228:25 231:5 241:3 255:15 256:13,18 297:25 315:19 317:7,10,13 317:16 318:1	platform 92:3 127:4 192:23 229:9,9	port 337:1
perfectly 232:2	ph.d 11:4	platforms 122:12,17,24	portability 145:24 147:21
	ph.d. 1:16 2:15 6:3 15:23 16:12 16:17 24:21,23 34:9,14 106:13 345:5	play 225:22 226:8,17 269:3	portable 151:20,21
	phil 315:18	plaza 5:7	portion 9:15 13:6 266:10
	philippine 91:17,20,21 92:5 104:15,17 105:1 123:19,23 124:6,9 303:22 315:19 318:1	please 11:3 12:7,20 13:1 41:8,8 47:16 48:24 69:6 84:4 85:14 89:21 104:11 108:2 119:24 140:1 224:21 237:23 238:10 240:18 263:14 285:25 299:21 312:15 316:24 321:4,10 325:4,18	portrayed 190:11
	philippines 116:23 123:11 124:1 125:23 126:23 301:24	plenty 236:4	posed 69:20 286:7
		plimpton 2:17 4:3 10:21	posit 80:8
		pllc 4:16	positing 92:6
		plus 23:25 339:11	position 139:7 147:5 182:2 184:4 187:6 188:20
		podcast 108:3,6,10,15,22 109:6,19 109:20,21 111:3 141:23	positioned 243:14 251:20
			positions 262:9

[positive - profitable]

positive 208:21 210:6	preferring 137:12	price (cont.) 298:12 309:11 310:5,10	procedure 40:18 167:11
possib 221:23	prefers 258:22	313:12 318:3,8,13 319:8,11	proceed 11:8 89:23 272:13
possibilities 108:21	prejudice 66:11	319:17,19 329:6 330:25	proceeded 38:7
possibility 291:15 312:5	premise 146:17 194:16 306:6 329:4	priced 114:5,7	proceeding 37:17 40:4
possible 49:19 68:9 96:14 110:6 164:23 199:9 228:18 258:7 291:18 304:5 308:20	premises 105:9,14	prices 135:23 160:21 166:18 267:13 268:6 269:10,14,18 271:2 281:22 294:3 314:19 328:16 329:7,23 331:16	process 21:1 43:14 113:13 114:25 203:10 218:25 221:25 222:25 227:20 230:24 234:17 244:20 288:20 339:2
possibly 96:3,7 100:20 219:19 258:4	prep 49:3	pricing 286:24	processed 255:15
post 217:18 227:7	preparation 46:22 47:13 50:20	primarily 76:20 119:3 122:18	processing 326:6
postings 170:1	prepare 43:16 45:13 47:25 48:1,20 52:6 260:24 262:19 264:7	primary 118:23,23	processors 326:15,19 327:10 328:4 335:9
potential 253:15 282:17	prepared 75:2 157:10,13 261:6 262:14 263:6 264:14 265:20	princeton 15:24	produce 28:7,15
potentially 60:8 274:13 277:9 340:23	preparing 35:24 36:2,3,24 52:23 64:7 175:4 196:2,6 247:9 249:24	principles 58:6 268:21	produced 40:21 47:18,22
pound 124:17 128:5 132:13 133:7 190:15	present 5:21 10:23,24 12:22 23:13 33:4 36:20 59:25 164:19 165:8 338:21	print 233:16	product 59:25 61:21 62:12 71:4,17 197:20 208:20 209:9,16,18 209:21 210:2,15 211:5,14 211:14 221:9 223:9 242:3 243:14 244:2 248:21 251:19 257:4,5,10,10,12 289:2 305:5 306:24 309:13 312:17,22 338:17,19,19
pow 94:5,22,25 96:2 97:15 100:10,22	presented 41:1,13	printout 174:18 232:14	products 119:2 244:16 248:22 256:5 256:24 257:8 301:4
power 233:6,24 234:6,21	president 238:22	prior 17:10 22:17 37:23 54:13 62:14 64:20,24,24,25 66:12 118:2 193:9 209:17,21 211:6 216:12 239:19 243:18 305:18	professional 19:11,18 22:19 35:22 43:6 43:12 191:25
pows 94:5,13 95:1,17 96:10	presumably 109:15	prisoner 93:21,22	professor 6:10 10:10 14:1,3 18:7 33:3 41:17 45:13 65:22 102:14 160:5 162:5 167:22 174:22 175:25 178:2 180:11,21 181:24 183:12,25 184:3 186:24 188:14 190:10,14 191:16 203:21 206:16 213:12 237:23 267:18 314:7 327:21 328:15 330:23 332:1 335:20 336:18,24 344:1
pr 108:18	presume 163:19 218:21	prisoners 96:22	profit 177:8,9,22
practice 13:19	presumes 46:14 93:23	private 24:14 134:14,20	profitable 248:6
precise 66:18 114:18 169:19 285:3 285:6 293:11 300:8 304:2 304:11	pretty 19:10 124:24 134:24	privilege 201:5	
precisely 67:20 117:2 137:3,11 138:15 151:9 250:5 325:2	previous 27:20 127:12 162:19 170:12 259:4	privileged 62:10,19 63:4,16 70:9,25 71:14	
preclude 293:22	previously 17:11 19:24 111:20 162:15 162:20 209:20 307:13 325:4	pro 205:21	
precludes 312:5	price 31:18 104:20 127:19,21 130:17 132:18 133:9 253:2 253:8,12 266:17 267:2,21 268:1,11,22 270:4,8,12,19 271:9,25 272:16,16,21 273:23 274:4 278:8 283:23 284:3,12,13 285:16 287:22 294:24,25 295:6,10,14,15	probably 41:25 82:4 135:3 159:2 195:25 221:23 324:7 327:21 331:24	
predecessor 210:2		probe 245:24 248:11,18 249:3	
predominantly 306:23		probing 251:3	
preface 135:20		problem 27:3 29:12 30:2 55:6 105:8 233:12 268:25 293:7	
prefer 255:25 257:19			

[program - rare]

program 24:22	public 2:20	put (cont.) 197:17 227:24 244:14	question (cont.) 195:24 196:1,5,19 205:6
progress 205:19,25	publication 15:4 31:22 32:6 78:9,15,17	257:24 259:18 264:15	206:16,24 210:25 227:11
prohibited 155:16	108:1,2 109:12 119:19	265:12 293:11 298:11	235:24 236:12 237:9
project 239:6	120:8,10,17 129:16 170:2	putting 84:23 131:15 171:3 327:19	239:12 241:8,25 249:10,14
promise 119:9	224:7 254:23	340:11	249:22 250:21 253:23
promoted 82:10	publications 31:2,6,10 32:2,3,6 47:25	q	255:18 256:11 257:9,13
prompted 48:17	64:3,10 78:20	q3 115:24 116:1 117:5,24	260:21 266:9 276:25 281:3
pronunciation 25:12	publicly 121:4 134:13,17 135:3,4	120:5	286:7 289:15 296:14
proof 202:7 233:7 234:25	249:12	qualification 182:15,23	299:18 301:18 302:22
properties 66:23 67:6 143:3,4,6	published 24:7,9 31:17,24 32:18,22	qualifications 216:10	316:18,25 318:17 323:1,14
196:12 197:6 200:7 278:24	38:8 63:18,22 79:3 168:1	qualifier 269:10	326:23 327:6,17 332:25
338:19	249:7	qualify 75:12 269:14	335:5,6
proposition 233:5	publishing 33:6	qualifying 285:19	questions 11:17 12:24 59:13,18 60:4
prostko 5:15 275:12 276:2 292:1	purchase 30:1 114:5,6 123:14,14,25	qualitative 315:23	61:4 62:4 89:15,20 107:19
293:20 327:7	124:9 156:17 157:2 220:14	qualitatively 182:11	116:6 135:7,24 145:9 147:4
protocol 55:5 167:11 202:5	222:4 231:21 324:25	quant 182:22	147:6 162:18 169:14 179:8
provide 28:24 30:21 36:2,3 58:6	purchased 122:24,25 123:3 124:15,17	quantities 114:23	179:22 180:7 186:15 193:7
68:13 69:3 134:4 182:22	124:21,23,25 157:22	quantity 253:3,3 272:8	197:5 200:4 241:22 254:19
211:21 214:22 246:22	purchaser 29:6	quarter 115:24 330:8	261:24 266:6 267:17
253:17 283:6 311:18,23	purchasers 29:10,25 320:7	quarterly 330:6	272:12 294:11 303:15
312:12 315:3	purchases 45:9 117:25 118:6	question 12:8,12,14,16,19,21 13:2,9	305:18 325:21 327:22
provided 43:2 106:14 168:2 218:1	purchasing 27:12 156:19	15:17 16:4 19:23 20:16	328:12,21 331:11 336:10
337:11	purpose 65:3 73:8 78:21 96:20,20	26:5,10,11 27:22,23 29:16	336:19,25,25 338:3,6
provider 29:7,8 126:24,25 127:7	112:5 118:1,10,23,23 119:2	29:21 30:14,21 43:18 44:16	343:20,23
222:13 227:17 230:1	139:3 148:23 149:1,2	44:22 59:21,24 62:12,21	quick 69:12 102:4 147:3 174:11
311:11,14 338:25 339:23	156:15 158:7 183:19 230:2	63:6 68:14 69:15,20,22,24	quicker 226:19
341:10,18,23 342:16,22	230:4 245:13 250:13	70:8,13 71:13,20 74:11	quickly 201:12 273:3
343:4	255:17 301:11 322:7 326:6	75:10,17 83:25 85:14,25	quite 33:23 77:5 82:20 92:18
providers 117:1 125:10,15 126:10,24	purposes 72:13,22 94:24 113:24	86:21 88:10 92:18 93:6,15	93:23 100:4 117:3 127:25
218:15 219:23,25 300:25	118:9,17 122:7 123:2 154:7	95:7 98:4,7,17 105:15,15	230:12 287:6 292:23 298:7
313:8 342:24	154:22,22 155:22 156:16	108:16 111:13 113:11	300:24 310:19,21 339:16
provides 135:4 211:19 267:14	158:6 220:6 249:9 256:11	117:21 119:23 123:3	quotation 324:1
310:13 312:23 324:1	281:11	126:19 127:17 129:11	quote 225:11 263:21 279:22,23
330:20 332:19	pursuant 2:21	136:18 139:24 140:24	299:11 321:11,22 323:3
providing 29:9 247:16 250:11,20	pursued 194:24	141:3,4,9 145:15 146:18	324:9 328:16 329:6,23
256:6	put 13:18 19:19 29:21 44:17	147:20 151:9 153:21	quoted 320:11,15 323:17 330:8
	81:5 84:22 98:3 99:3 120:4	154:13 155:25 156:14,15	quotes 68:20 325:21
	124:4 139:8 175:11 178:21	170:13 172:13 178:25	r
	193:10 195:11 197:2,10,16	179:13 183:23 184:10	radford 93:20 94:10 100:6 144:16
		185:24,25 190:9 194:25	raised 21:24
			rapidly 283:5 318:7
			rare 269:25

[rate - relevant]

rate 50:16 131:12 132:13 134:11,12 192:15 280:13 288:7 298:1,3 310:9	realize 12:23 23:1 134:24 136:18 realized 27:19 65:24 really 60:18 88:5 93:10 94:23 97:1,5 121:12 129:11 139:7 168:16 188:11 228:18 249:15 263:3 309:7 327:24 333:24,25 reason 35:18 63:14 157:19 173:4 187:19 190:22 191:5,6 195:18 201:6 255:24,24 259:10 329:17 reasonable 273:14 reasonably 35:14,21 188:3 269:8 321:11 reasoned 235:23 reasoning 315:9 reasons 36:15 213:18 248:14,19 249:2 259:3 293:17,22 297:12,17 298:15 reassurance 283:7 reassure 282:19 284:17 rebuttal 7:4,8,13 46:4 52:1 64:8 119:14 130:15 135:21 192:6 202:8 260:10 262:15 262:15 263:5,7,16,24,24 264:1,9,25 265:4 266:4,10 274:19 285:8 286:22 287:8 287:15,16 288:24 296:12 299:7 314:12 323:23 325:5 325:19 rebuttals 45:22,24 46:2 52:7 265:23 recall 37:12 42:5 48:17,18 79:15 79:16 94:21 114:9 136:9 194:12 199:7 337:5 338:6,7 receipt 260:17 340:9 receive 15:25 16:12 53:1 177:2 received 14:6 50:23 51:3 95:4 174:6 175:18 223:23 232:8 237:17 243:20 254:5,8	received (cont.) 260:5 261:21 263:10 264:17 296:21 receiver 219:9 receivers 307:19,22 308:9 receiving 100:9 317:14 recess 65:18 102:10 159:9 213:8 259:23 314:3 recipi 342:15 recipient 24:23 221:1 311:16 318:13 342:5,11,23 recognize 14:10 232:21 238:10,13 recognized 204:10 291:16 recollection 38:25 79:11 recommended 210:24 244:13 reconstruct 284:10 315:8 record 10:6,25 11:19 12:5 13:19 28:1 65:17,20 71:22 102:9 102:12 140:2 159:8 160:3 213:7,10 238:2 244:25 258:2 259:22,25 260:9 262:14 291:9 299:19 314:2 314:5 321:10 325:10 328:14 336:13,16 344:3 345:9 recorded 203:6 red 95:4 reduce 216:5,10 245:4 271:25 324:13,16,19 reduced 219:1 271:8,13,17 reduces 219:2 reducing 205:20 207:10 refer 13:10,25 19:14 77:15,23 89:25 102:1 127:16 152:3 165:8 185:19 265:8 266:9 reference 64:22 74:17 78:6,8 153:24	reference (cont.) 154:20 referred 118:13 119:12,13 221:20 224:9 335:18 referring 74:14,16 76:13,16 90:5 135:8 149:8 153:14,17 233:19 269:15 275:3 276:10,14 279:15,17 285:20 286:8 289:14 298:17,18,22 307:5 332:3 refers 26:20,22 206:2 220:10 241:3 285:24 refresh 38:25 regard 27:4 109:19 281:13 283:8 285:12,20 286:9 288:8 290:5,10,11,22 regarding 24:11 37:4 240:3 region 301:20 regional 3:8,11 regularly 89:11 329:6,23 rejected 39:20 related 152:18 207:4 241:8 294:10 299:18 345:15 relates 205:1,2 relationship 29:15 126:10 239:5,7,8 243:1 247:21 249:6 relationships 300:24 relative 61:4 133:14 135:22 198:2 199:1,14 218:20 235:5 294:25 295:14,15,16 relatively 93:23 95:20,20,25,25 234:13 288:2 340:9,11 relevant 27:14 28:6 42:13 60:5 133:19 136:14 189:15,17 269:7 271:21 287:19 288:14 294:20 310:15 328:22 329:11,21 332:11 339:8
--	---	--	--

[relied - review]

relied 41:2 55:2 57:5,17 134:23 224:18	rephrase 12:12 37:15 84:5 87:15 241:18 323:14	reports (cont.) 249:7 330:7,14	respect (cont.) 340:17
relies 190:10	report 6:10 7:4,9,13,17 14:14,15 14:16,20 38:19 46:1 47:21 49:13,20 51:23 52:1,23 54:18 55:2,3,7 56:20 57:4,8 57:10,17 58:15 59:6,14,20 64:8 68:3,6,10 69:16,19 72:14,22 73:1 74:7 78:9 84:11,22,24 88:18,25 89:13 90:6 91:4,13 94:10 102:2 106:8 111:20 112:9 115:9 117:17 119:14 120:4,5 127:21 128:15,19 129:21 130:15 131:7,11,21 136:9 141:11 149:4,11,21 157:9 157:11 162:9,14 164:17,17 175:4 194:15 195:3 196:3,6 197:18 201:11,19 203:23 206:11 207:15 210:10 211:1 213:14 214:17,19,20 215:5,14 218:6,11 224:10 227:13,19 229:23 232:25 240:6 242:11 243:10,12 246:1,5 247:10 249:24 250:8,25 251:11 253:25 260:10 261:7,15 262:1,25 263:16,20,24,25 264:1,9,25 265:1,4,14,17,20,23 266:5 274:19 278:7 286:3 295:19 295:25 296:5,8,11 297:13 298:23 299:5 308:8,20 309:17 311:6 320:11,21 321:3,5,12 323:12,17,24 325:5,19,22 332:4 337:2,18 338:1	repository 166:4	respective 345:16
remain 136:16 234:22		represent 84:8,8 85:21 175:2	respond 71:19 188:1
remained 268:10		representative 74:20	responded 46:10
remains 198:2 199:1		representing 11:16	response 27:20 98:18,20 164:7 207:23 260:24 262:17,19 263:7 264:8,14
remember 12:15 20:17 54:7 59:10 94:15 108:6 116:22 137:8 160:8 164:14 169:19 175:9 195:4 201:14,15 205:16 218:19 224:5 239:17 250:5 285:2 324:17		request 9:20	responses 47:19 55:13,16
remind 12:6 117:20 227:3		requested 64:19,23 345:20,20	responsibilities 33:20,22
remit 216:14		require 37:7 71:13 234:22 236:15 236:17,18 244:16 299:15 301:4	responsibility 157:17
remittance 117:1 125:10 126:9 207:13 208:1 210:8 218:15 219:23 222:24 256:8 300:25 301:13 302:7,15 308:10 311:11,13 313:8 316:1,9,23 316:25 332:12 338:25 341:9,17 342:16,24 343:4 343:15		required 37:3 40:23 45:9 61:9,19 90:10 106:4 137:19 172:19 202:7 203:9 233:6 236:14 328:24 333:14 341:18	responsible 50:11
remittances 119:7 205:20 206:5,13 207:10 208:22 210:9 216:14 219:2,5,9 221:2 301:19 305:8,10,12,13 307:8,12		requirement 234:25 235:2	responsive 211:1
remote 3:1 4:4,5,6 5:6,15		requirements 234:13	rest 306:1 324:17
removed 322:22		requires 202:5 233:5 234:18,19	restate 84:4 85:14 92:15 139:24 154:12 195:24
removing 321:13 322:1,4,6		reread 45:21	restricted 268:19
rendered 42:14		rescan 76:4	result 310:23
rendering 157:24		research 22:2,10,16,24,25 23:2,4,14 23:20,23 27:13 28:3,6 33:6 63:18,22 69:10 78:19,24 93:17 176:8,14 177:24	retailers 326:14,18 327:9 328:3
renders 183:6		reserve 6:14 18:22 19:2 22:18 101:15 107:1,5,15,20,25 108:23 109:7,11,12,14 110:18,22 111:4 141:11,21 142:3,16,20,23 143:5,22 174:19,25 290:10,17	retain 146:23
repeat 27:22 34:12 80:14 89:17 99:20 151:9 154:6 311:21 316:20 342:17		resource 234:13 236:5	retained 54:8,9 55:23 56:15 62:13 63:7 242:10
repeating 305:19 327:25		resources 235:4	retention 54:13,17 64:25
	reported 1:23 120:14 203:3,8,10 345:10	respect 26:25 112:19 136:17 252:24 253:1,13 265:1 269:21 272:22 276:16 280:24 281:20 286:11 294:2 295:6,23 297:23 303:19 307:11 309:22	rethink 145:3
	reporter 11:1,7 17:20 25:6 34:2,6,7 34:12 40:7 80:13 86:5 89:17 96:5 110:24 140:7 144:8 174:14 175:16,21 178:7 193:14 204:3 209:13 209:15 213:21 230:14 232:12 307:20 309:4 311:20 320:14 342:17,19 345:11		return 162:13 324:8 335:21
	reporting 10:19 330:3		reveal 45:18 62:18
	reports 45:22,24 46:23 47:6,7 52:7 53:6,9,16,20 56:11,16		revealing 60:17 61:7,18 62:12 70:9 72:1

[reviewed - semester]

reviewed 55:1 78:15,16,20 260:20 264:6	ripple (cont.) 167:20 168:2 169:1,6,25 170:1,2,9 199:13 200:9,10 200:24 201:7,9 203:4,8,23 204:6,13 205:2 207:20 209:16 210:15,21 211:4,13 212:1,17,21 219:24,25 220:10 224:7 229:9,10 232:22 234:7,14 235:1,9,16 239:5 240:9 242:24 243:7 243:18 244:5,12 245:4,20 246:1,14 247:21 249:5,9,11 251:19,22,25 256:15 259:12 275:4,8,23 276:16 277:19 278:1 282:5,12 283:18 284:17 285:14 290:9,21 291:2,14,20,23 293:3,14 300:22 305:16 306:17,20,20 311:11,17,22 312:5,11,19,23,25 313:9 314:8 320:13,18 321:8 324:3 330:7,21 332:13	run 270:1 272:10,10 273:15,17 293:5	second (cont.) 160:6 186:13 193:2 241:16 254:15 258:4,16 261:2 310:11,16 319:22 325:9
reviewing 260:18		runs 301:9	secondary 23:8 109:22
rich 69:11 70:14 82:20 301:24		rupee 100:12 329:13	seconds 130:17 192:24 199:24 201:13,15 202:5,9,11 203:3 203:7,23 212:19 213:1 225:8 255:15,22 313:14 315:17 318:7 343:12
rifkind 5:14		s	secret 211:23 212:1,5,6
right 11:13 12:17 13:3,16 14:3 15:21 17:2,6,9 19:1,9 20:4 20:19 21:2 25:8,11 28:13 30:13,23 31:19 32:13,15 33:2 35:3,4,22 39:16 42:10 42:19 43:17 46:6,6 50:17 52:21 54:1 57:25 59:5 68:20 71:3 73:24 86:21 89:7 90:5,25 91:24 93:7 97:7,13,16 107:18,22 108:12 109:4 116:4 119:9 127:15 135:25 136:15 139:8,12 141:17 149:3 153:8 156:2,12 157:12 158:10 161:17,22 162:5 163:13 166:2 167:13 170:14 171:24 172:23 174:5 175:11 177:25 180:1 181:4 188:6,13 190:5 200:16,21 202:12 205:10 205:17,18 206:2 210:9 214:7 216:2,3 220:7,24 222:1,6,12,15 224:17,23 226:23 227:9,12 229:8 232:4 233:1,16 239:25 240:6,18 249:21 254:2 257:14 259:18 261:23 264:16 265:16 266:3 268:7 270:22 274:5 277:15 286:10 294:10 296:4,17 299:3 304:5 308:7 312:11 315:3,5 320:2,25 324:7 325:3,6,18 327:5 328:19 331:25 332:9,23 335:2 336:13 339:21 343:19,25	ripple's 59:24 61:20 127:13 197:19 198:2,17 199:1,3,18 208:20 209:9 211:3 241:10 244:1,2 250:11 253:18 255:25 257:18 283:25 305:21,24 306:24 320:4,5 323:25 330:6,12	sat 19:20 52:19	sec's 54:10,22 55:10,12
	rise 270:19 271:2,9 285:16	satisfaction 148:2	section 32:7,13,20 34:18 35:17 74:7,10,15,15 75:12 76:7 186:10 197:19
	risk 183:5,7,20 184:15 187:14 313:17 314:9 315:20	sauce 212:1	sections 180:12,25
	risks 186:25 188:15 189:20 190:2	saw 194:12 195:8	secured 321:16
	rmr 1:24 2:20 345:24	saying 29:10 73:7 83:14 95:19 101:23 112:4 135:2 161:10 161:15 169:16,17 177:20 182:17 201:17 216:24,25 280:8,8 282:1 283:21 294:7 294:9,11 308:20 315:1,10 321:22	securing 321:17
	rob 212:10	says 178:5 180:25 183:3 185:10 185:21 186:24 225:2 233:22 257:9 266:15 321:3 321:6	securities 1:4 2:4 3:7 10:11
	robert 3:9 11:16	sb 116:21	security 61:10 166:21
	room 12:11	scalable 226:20	seed 246:14
rim 116:25 126:12,13,13,17,17 300:23,25 301:7 304:25 306:13	roughly 19:8 94:16 115:24 119:1	scan 125:14	seeing 224:6 227:15
ripple 1:7 2:7 4:2,14 8:17 10:12 37:1 43:19 47:18 50:5,13 53:21 54:3,11 55:6,22 56:4 56:5,5,21 69:23 70:1,20 116:8 118:25 119:4,6,20,20 120:4,16 121:1,2 127:5	royal 38:2 39:13	school 106:14 109:22 110:4,11 178:14,18	seen 131:16,18 178:25 193:19 194:3,4 224:5 239:1,3 240:12,17 241:5 249:3 263:23,25 264:3 330:12
	rsp 341:9	schwartz 232:19,21	selected 29:4
	rule 272:19	scratch 101:23 333:11	selection 24:15 26:16,20 27:3 29:12 30:2
	rules 281:12	sec 5:22 6:8 7:2 8:2 11:16 14:7 47:19 174:7 175:19 221:10 223:24 232:9 237:18 254:6 254:9 260:6 263:11 264:18 296:22	sell 91:19,21,22,24 127:7,13 189:14 221:17 278:10 291:24 292:7 313:9
		sec.gov 3:16,17	selling 29:8 104:16 220:22 274:15 274:23 276:9,18 277:5,13 277:20 293:14
		second 12:10 71:11 76:7 133:15	sells 330:7
			semester 18:10 21:18

[semi - sorry]

semi 269:8	service (cont.) 342:16,24 343:4	showing 133:8 190:12 206:12 335:21 336:4	situation 26:20,22 92:6
senate 33:24	services 43:7,12 63:15 91:2 98:11 103:19 114:7 136:13,21 153:18 156:19 172:2 208:2	shown 206:20,21 208:9,19 210:10	six 141:12 142:17 145:14
send 53:19 218:18 291:20	sender 219:9 311:10 318:3,8 339:14,24 341:6 342:5,8,23	shows 32:17 131:18 132:12 178:12 185:4 190:23	size 94:22 97:14
senders 307:19,21 308:9	settling 162:17	shuran 24:19,20 25:1,6	slight 289:8
sending 219:6 291:14 317:12,13	set 42:10 207:20 208:3 257:2 265:16 297:13,18 319:11 336:3 338:6,7 345:17	side 42:4 199:21	slightly 43:18 181:23 289:19
sense 40:25 67:13 71:4 93:6 104:21 105:17 126:6 145:25 166:10 182:23 212:5,7 301:18 305:24	settle 40:6 318:9,21 319:7	sig 268:4	slippage 221:9
sent 53:21 259:5 260:16	settlement 318:23 319:1,13 343:14	sign 50:2	slow 198:2 199:1,14,14 203:9 213:22 282:25 285:15 286:24,25 288:1,7 289:5,11
sentence 76:7,10 106:24 112:25 128:8,20 129:13 142:15 149:23 153:13 181:23 183:1,2 184:3 186:22 187:15 188:2 198:1,15 203:16 225:6 244:10 266:14,23 280:5,6,17 285:10 299:9 319:22	seven 145:14 149:9	signal 291:14,21	slowly 287:17 290:18,23 292:17 321:11
separately 8:21	seychelles 100:12,14 329:13,13	signals 236:19 289:7	small 85:5 93:23 95:20,25 96:22 97:1,5 223:19 230:3,9,19 231:18 232:3 300:18 310:19 311:2 337:20 341:16
september 116:1	shape 337:14,17	signature 238:16,17	smaller 219:20 221:23
sequestered 274:12	share 60:4 69:6 321:17	signed 53:6 164:17 238:18	smoke 95:6
series 6:19 143:8 174:21 176:2 184:19,24 185:3,10,22 186:9 325:21	shared 83:10	significance 142:22 322:9,20 323:2	smoother 13:12
serve 34:11,14 90:11 149:18 150:8,9 243:15 330:17	sheet 229:13 238:7	significant 117:5 135:6 185:4,9 208:25 241:13 242:3 267:12 268:5 278:2 291:3,3 300:10	sn 1:6 2:6
served 93:20 250:12	shells 145:2,4,6,9,12,18,22,25 146:2,9,14,22,23 147:9,14 147:18,22,24 148:5,14,21 148:24	significantly 268:19 270:10,24 273:3 278:9 299:10	social 176:18
servers 166:22	shereck 5:23,23 10:16,17	signing 345:19	societary 81:8
serves 92:3 111:17 112:5,11 119:2 127:5 330:18,19	short 65:11 254:17 259:20 272:10 273:15,17 281:23 281:23 293:5,9 313:22,23 341:16	similar 16:4 30:3 145:15 196:5 216:9 256:13 286:25 305:17 331:11	sold 275:23
service 5:23 42:24 43:2 44:10 125:10,15 126:9,24,25 127:7 134:14 218:15 219:23,25 222:13 227:16 229:25 300:25 311:11,13 330:20 338:25 341:9,18	shortage 293:6	simultaneously 271:14	solely 157:22
	shorter 313:15	singapore 126:11,14 301:21	solicited 63:15
	shorthand 345:11	single 299:24	solution 324:6
	shortly 18:22	siskinds 36:7,14	solutions 8:12 254:25 255:6
	show 132:17 207:24 215:6 232:6 287:14,16	sit 61:6,17 80:7 85:9 87:2 116:14 124:8 171:24 182:1 187:5 189:18 190:21	solving 55:5
	showed 287:7 332:2	sitting 42:5 48:14	soon 205:23 212:12,15 277:14
			sorry 16:14 34:4 70:21 74:6 78:6 80:13 96:9 111:16 113:22 116:13 130:13,18 134:6 139:18 140:7 141:3 153:15

[sorry - steady]

sorry (cont.) 158:21 173:19 176:1 178:24 193:24 201:2 202:19 204:3 205:2 206:9 210:8 212:20 223:3 237:9 243:14 244:6 246:9 266:24 282:10 284:23 285:8 292:10 297:6 300:13 311:20 317:2 318:12 325:7 333:3,11 335:17	speak 36:22 201:2 speaker 108:14 speaking 42:3 109:7 123:20 130:9 speaks 280:17 special 142:2,22 specific 28:5 39:10 42:9 67:16 68:22 71:8 74:17 76:5 94:23 95:14 106:15,15 112:22 115:11,13 127:25 130:15 150:9 166:18 172:5 198:8 211:18,20 218:10,21 219:15 223:8,21 227:25 240:4 242:7 272:8 338:11 specifically 18:17 20:8 21:8 48:20 61:7 67:14 90:8 115:6 118:13 127:18 135:8 144:14 167:23 199:8 217:14 230:13 283:3,17 331:9 specifics 94:21 185:23 211:17 275:7 specified 29:5 70:13 73:22 143:21 163:24 207:1 specifies 322:5,18 specify 74:23 96:19 164:1 202:8 speculate 139:7 155:12 speculating 155:16,17 speculation 60:24 155:10 speculative 98:3 speed 198:16,19 200:7 202:14,24 214:10,24 218:25 343:11 speeds 204:10 spell 11:18 46:5 spelled 107:21 spelling 25:6 spent 98:4	spi 125:22 spoke 45:22 108:24 spoken 273:10 spons 77:9 sponsored 76:9 sponsorship 76:22 77:2 80:2,9,19 83:1 83:12,21 84:9,13 spontaneous 81:1,14 82:11 sport 327:23 spot 248:4 spread 339:11 340:19 343:5 spreads 221:6 308:16 309:2 339:11 339:24 sprostko 5:19 square 4:19 ss 345:2 st 6:14 100:16 101:15 107:1,5 107:15,20 108:1,24 109:8 109:12,14 141:21 143:5 174:19,25 stable 253:7,10 278:4 295:23 297:22 298:10 334:11 stablecoin 252:15,16,21 253:2,17 255:8,20 256:1,18 257:18 257:19 258:14,22 287:21 287:23 288:5 295:3,20,23 296:1 297:5,8,22,24 298:2 298:4,4,7 stablecoins 252:13 255:14 294:5 stage 207:20 stages 210:22 211:3 staines 38:2 39:13 stand 62:23	standard 219:10 301:2 310:8 331:16 standards 100:5 standing 77:7 328:11 start 11:18 13:18 34:18 99:12 205:5 238:4 254:22 297:6 299:14 300:3,17 301:14 312:10 324:5 328:20 332:6 started 235:10 starting 106:13 starts 213:14 274:6 333:5 state 76:9,21 77:2 79:4 80:1,8,19 83:1,12,21 84:9,12 85:11 85:18 86:3,8,15 87:3 119:24 141:13 182:24 212:16 345:1 stated 306:14,19 323:23 statement 42:2 105:8 111:3 128:21,25 129:19,23 141:20 161:6,8 161:14,24,25 162:4,19 164:18 165:13,17,20,21 166:7 174:4 180:11,20 182:4 183:10,13 184:5 186:1 187:7 188:11,21 189:19 198:25 212:25 226:18 230:12 267:8 278:5 308:13 309:18 323:10 326:2,4 327:15,20 332:15 332:16 333:3,8 statements 117:18 162:16 168:22,23 196:12 266:4 279:23 320:4 320:12,16,17 323:16,18 states 1:1 2:1,20 3:7 10:14 77:9 77:10 80:25 110:20 301:10 305:11 306:22 316:2,12 317:1 327:3 329:16 stating 112:8 142:20 149:11 status 79:19 148:14 steadily 287:17 steady 288:2 289:5,11
---	--	--	--

[steen - swiss]

steen 5:5	students (cont.) 110:5,11	succession 18:8	supply 43:14 153:6 167:14,14
stella 5:22	studied 16:5,7 188:5 260:20 331:6	sudden 116:2	169:12,14 266:16 267:2,8
stellar 8:17 258:13	studies 279:10,21,24 280:8,11	suddenly 268:19	268:18 269:1,3,22 270:6,18
stenographic 10:25	study 15:19,22 16:6,19 23:10	suffer 29:11	270:24 271:6,7,13,16,18,21
step 40:23 196:10 220:21	25:16 28:16 37:7 40:2	sufficient 64:17 76:22 77:3 83:13	271:22,24 272:8,10,10,14
248:24	50:20 52:7 182:3 184:5	144:3 201:10 235:22	272:20,24 273:2,15,17,21
steps 299:15	187:7 188:18 230:24	250:13 293:4,4	279:11 280:2,9,11,18,24
sterling 124:18	studying 15:18 16:16 181:14 193:12	suggest 83:20 84:10 104:24 110:23	281:12,20,25 285:14
stern 178:14,17	231:24,25 260:19	148:3 152:23 257:23	286:13,15,17,18,22,23
stick 272:11 324:6	stuff 233:14 333:18	268:21 290:16 310:4 311:6	287:1,4,5,10,14,16,18
stipulations 9:10	subcontinent 305:11	313:6 331:23	288:4,9,20,22,24 289:3,6
stopped 239:6	subject 22:2 30:2 35:1 56:15 67:4	suggested 80:1 97:7	289:12,17 290:18,22
storage 153:1,2	82:20 93:17 195:8 310:4,16	suggesting 96:9 105:4 111:2 116:6	292:17,24 293:15 294:15
store 101:25 102:17 103:14	311:2	274:21 293:13	294:20 295:3,5 321:19
105:21 106:1,9 107:3,12,12	subjects 42:13 155:2	suggestion 116:2 267:10 276:20	support 9:1 133:17 292:8
156:5,11,21,25 157:2,23	submissions 47:20	suggests 257:18 258:21,21 280:2,18	supported 194:17 304:19 324:1
160:13 180:14 182:1,9,18	submit 266:1	331:23	supporting 128:24
188:25 283:13	submitted 40:1,11 49:13,21 52:2	suite 3:13 4:21	supports 309:1
stored 166:2	subsequent 298:3	suited 211:9 226:18 305:23	suppose 105:1 297:24 301:8 313:7,7
straight 134:24	subsequently 117:19	sum 307:18	335:4
straightforward 324:6	subset 99:1 118:18 172:13	summarize 204:25 315:22 338:9	supposed 286:12
strategic 250:12 301:2 323:25	subsidies 242:25 243:20,25 244:12	339:20	supposedly 266:17 267:3
strategical 118:25	244:19 245:3,21 246:2,5	summarized 120:5	sure 19:19 25:7 29:15 30:14
strategies 210:23	249:10,16,17,23 250:4,9,9	summary 23:3 40:11 69:12 118:2	44:19 49:1 58:3 59:11
strategy 119:5 244:1,13,15	250:25 251:7	127:23 156:6 297:19 315:3	65:12 66:2 68:5 84:6 87:22
street 3:12 4:20	subsidizing 243:8	sumner 4:19	88:1,2 89:8 92:18 111:15
strike 64:22	subsidy 245:10,14 246:16 250:15	superior 213:19,24 216:22 297:9	120:1,1 142:12 159:5,6
strong 282:23,25 324:2,2	250:22	supervisory 33:19	177:7,15 179:2 180:2
structure 20:25 234:19	substance 45:18 60:11 62:19 70:6	supplied 271:18	201:23 204:23 219:22
students 20:4 22:2,14 34:9,9,14,14	71:16 163:17 180:24	supplier 290:6	237:8 238:17 252:12 279:4
53:2 89:10 93:25 109:22	substantial 114:23 173:17 234:18,20	supplier's 252:19	281:5 314:23 318:19
	242:25 309:11 310:5	supplies 283:4 294:2	325:12 343:10
	334:24 340:15		surprise 88:8
	successful 147:24 148:14,15 248:8		surprised 303:5
	251:21		sustainable 226:20
			swarthmore 15:10
			swear 11:3
			swift 198:9,12,18 199:10,11,12
			199:21 200:1
			swiss 303:24

[switch - thinking]

switch 313:24	taught 17:11,23 18:2,6,15,21 19:3 19:4,8 20:5 64:16 106:18	term 26:15 65:23 66:17 67:16 68:6,9,19 69:15 71:8 88:23 140:5,8,10,12 156:22,23 167:14 169:14 184:18,22 184:23 209:22 210:9 252:12 293:9 322:10,14 324:14 327:3	thanks 25:11 39:16 58:12 102:24 257:14
sworn 11:5 345:6	teach 17:17 18:12,20 20:3,24 89:10	terminology 308:4	theoretical 304:12,15
synonymous 150:6	teaches 24:25	terms 32:21,25 68:8 91:4 97:9,16 112:23 119:11 136:13,21 187:12,13,17 188:2,19 222:20 223:21 236:21 241:1 252:17 260:18 286:13 293:1 295:10 304:17 310:10 330:21	theory 16:7 19:3 79:4 81:2,6,8,15 82:11 85:11,18 86:3,8,15 87:3 160:21 288:20 338:17 342:25
synthesis 76:1 78:11,19	teaching 15:5 17:2,10 20:20 21:7 22:19	terrible 249:21	thesis 15:5,5 24:22 25:15
system 110:19 111:4 198:3,17 199:1,4,11,18,19 213:18 213:22 220:23 224:13 255:19	tech 120:11,12,12	test 151:1 168:18 204:21	thing 12:6 40:20 134:20 172:23 175:4 181:12 188:15 221:7 257:23
systems 213:20,25 214:13,21 215:12,20 216:23 217:2,17 299:23	technical 26:15 126:20 241:1	tested 22:4 200:16	things 44:24 45:14 48:15,18 56:18 58:22 102:23 106:16 113:5 116:22 119:23 120:7 142:9 143:19 144:21 171:12 203:20 210:23 214:3 268:10 313:17 334:6
t	technically 123:20 219:18 220:19 304:11	testified 11:6 37:13,16,22	think 12:20 13:12 21:13 26:17 40:17 50:10 60:19 71:6 74:20 75:17 82:24 87:25 88:1 93:5 98:24 99:9 109:4 109:21 112:25 117:4,12 118:8,16 119:12 124:5 132:9 133:3,6 134:22 136:17 144:5 150:24 169:12 170:6 176:17,22 182:14 183:22 186:3 189:4 189:4 190:22 193:7,19 199:9 200:18 210:13 215:18 217:8,11,13 218:17 222:9 232:5 233:20,21 241:17 243:17 246:18 248:5 250:7,16 251:5 253:23 257:11 261:3,18 262:4 266:8 267:25 268:2 268:19,20 269:7 272:11 280:11,17 283:19,21,24 284:24 286:21 287:19 288:13 289:15,17 291:2,11 293:25 299:19 305:20 312:4 313:3 314:18 316:8 316:16 321:2,25 322:25 323:15 324:9 327:14,19,22 329:20 333:17 334:2 337:19 341:3,22 342:8 343:20
table 190:7 191:22	techno 120:6	testify 345:6	thinking 20:16 127:25 156:3 164:24 165:3,6 181:9,15 183:16
tail 329:19	technologies 210:16	testimony 12:5 38:6 39:1 41:5,7 50:19 55:19 71:24 72:4,7 99:9 117:23 118:3 147:15 148:18 171:9 193:3 222:12 222:17 239:20 241:7 276:23 290:19 337:5 345:10	
taiwan 126:15	technology 235:18 243:15 246:3 251:20,24 253:16 256:18 305:23	testing 211:2	
taken 2:16 41:13 65:18 102:10 159:10 170:25 171:10 173:10 206:10 213:8 259:23 314:3 345:8	technx 120:12	text 108:7 258:3 307:10	
talk 17:9 33:17 49:4 90:25 91:3 93:7 101:10,25 133:22 143:15 145:6 153:1 156:18 156:20,20,24 246:11 261:7 263:3 279:20,24 280:9 288:19 303:13 319:1	telephone 3:15 4:9,23 5:9,18 56:3	thai 301:21	
talked 154:4,15 174:12 214:9 249:8 313:15	tell 11:18 13:13 14:25 15:8 31:7 33:11 36:6 52:20 66:3 69:25 73:14 115:6 132:4 163:12 164:8 166:24 186:7 195:9 196:19 207:7 209:25 211:24 214:14,18 219:21 220:18,20 225:14,25 233:10 238:10 247:25 248:4 305:20 324:11 339:21	thailand 301:22	
talking 19:1 29:16 49:3 65:22 71:3 107:18 162:20 186:8 227:25 269:17 272:9 278:23 297:25 302:4 309:18,19,20 318:23 342:21	telling 71:23	thank 11:7 13:24 14:5 19:16 34:6 53:13 85:24 100:24 104:23 118:7 129:10 133:20 158:10 159:1 175:17 182:16 186:19 194:6 197:16 202:12 203:12 204:22 209:15 232:12 234:3 254:4,16 258:8 260:4 265:12 266:11 290:4 299:8 313:4 322:24 325:15 336:17,20	
talks 38:9 225:6,15	tells 28:14		
tangled 312:9	ten 65:13 132:19 331:1 340:14 343:17		
tank 176:17	tender 79:19 87:17 137:20 333:1 333:13		
task 33:25	tense 164:19		
tatz 5:6	terizes 194:1		

[thinking - try]

thinking (cont.) 217:13,15,16 262:4 277:1 283:12,17 324:23	times 12:1 32:5 37:13,22 46:13 46:21 114:12,14 208:19 233:23 277:24 288:25 330:24 331:1,18	total (cont.) 267:8,11 270:3,10 305:6,7	transaction (cont.) 343:6,14
third 2:17 4:7 10:21 36:19 169:5 170:8 225:1 233:13 258:4 258:15	timing 164:16	track 117:20 126:6 228:8 302:22	transactions 91:10 114:18 167:12 172:6 173:9 192:25 199:23 203:5 203:19 212:18 215:15 216:13 219:22 221:13 223:10 228:4 231:8,10 236:1,15 245:6 283:12 292:8 293:16 299:14 301:12 302:7,15 303:1 312:19 313:8,10 317:3,15 318:6 334:16 338:5 340:7 340:13 343:2,3,15
thought 20:17 58:14 67:20 87:8 88:15 117:24 121:13 132:9 157:9 168:19 194:19 195:20 215:19 262:9 276:16,25 284:16	tiny 222:11,11,14,14 234:13 235:5 290:3	trade 17:19,22 23:1,16 24:1 25:21 26:6,14 29:4,5,9 95:6 96:24 97:16 115:5 229:22 271:20 273:13,16 291:5 293:10 304:22 319:10,18	transcribed 345:12
thousand 118:25	title 25:13 174:19 176:2 179:3 232:14	traded 66:23 115:14 122:10,24 152:14,21 153:10 154:3,8 154:20,22 155:6,19 157:18 158:4,5 162:21,24 163:8 164:10,21,25 165:8,9 274:13 304:17 331:2	transcript 108:8,9,11,22 141:23 174:23
thousands 95:1,9	titled 31:18	trader 124:13	transcripts 55:18
thousandth 219:16	today 10:20 11:1,17 12:5 17:5 37:2,23 40:3 42:5 45:14 48:2 61:6,17 80:7 85:9 87:2 115:2,6 116:14 124:8 135:22 146:15,24 157:16 171:24 178:22 182:2 187:5 189:18 190:21 191:3 193:3 261:6 262:14 266:8 289:19 291:24,25,25 292:2 293:13 307:13 321:13 327:22 331:15 332:2 334:10 336:19	traders 30:9,12	transfer 44:11,21 209:16 218:2 242:4 243:2,16 245:16 251:21 253:13 256:14 257:16 258:23
thousandths 219:19 221:22,24	today's 10:7	trades 229:11	transferred 256:17
three 19:8 38:20 102:16,25 156:16 212:19 213:1 225:8 226:7 343:12	todd 4:16	trading 18:15 20:25 21:4,5 22:21 23:11 24:2,8 25:25 26:1,6 42:21 48:12 64:15 104:13 105:1 113:24 114:9,19 115:23,25 116:3 118:6,9,14 118:14 119:11,13,18 120:3 120:25 121:6 122:7 153:14 153:15,22 154:15 158:6 230:24 266:16 267:2,13 268:5 269:10,13 293:5 304:3,6,7 317:6,10 318:24	transfers 96:23 198:3 199:4,25 218:3 227:7,8 255:10 256:2 257:2 307:5
threshold 93:16,18 94:4 95:15,16 97:10,14 101:19	token 123:13 267:21 268:1,18	trading's 117:4	transition 117:22
tied 298:2,5	tokens 267:19 268:9 270:11 272:3	traditional 205:21 210:16,23 215:19 299:23 333:2 338:21 343:3	transmitters 211:9 221:1 309:19
tier 31:18	told 61:8	transact 91:21 115:19 116:10 334:10	transparency 219:1
time 10:6 12:10,10 17:14,17 18:5,19 20:11,18 49:3 59:5 59:5,9 65:23 81:23 98:4 102:6 103:24 115:8 116:20 123:13 131:7,10 133:9 136:2,12,15,18 165:3 177:16,18 184:18,24,25 185:1,2,4,10,22 186:9,9 191:24,24 192:19,23 193:2 193:20 197:14 202:11 203:4,22 206:21 208:9 209:9 221:3 241:9 253:25 266:2 269:17 277:14 279:25 283:14 289:2 290:18,23 292:17 310:11 310:17 311:2,5 313:15 318:9,20,23,24 319:1,13 325:9,12 336:5 340:6,7,7 340:13 341:16 343:21 344:2 345:8	tomorrow 268:8	transaction 104:15,18 126:7 155:7 199:11 200:17,23 201:12 203:4 214:25 215:1,7,8 216:4,6,8 217:21 219:12 220:3,22 221:25 222:10,19 222:21 223:18 224:13 225:16 227:4,14 228:3,11 228:24 233:25 234:14,24 298:8 299:24 312:24 317:24 318:21 319:9,13 333:23 338:22 339:18,19 339:25 341:12,14,15,19	transparent 214:6,8
timeline 272:1,4	tons 305:12,13		trial 37:17 40:12
	tool 183:7 184:15		trivially 341:15
	top 32:16 34:19 68:20 174:19 176:2 186:14 213:15 226:6 233:12 251:7 258:3 274:7,9 307:4 321:5 331:1		true 16:11,17 18:3 172:23 181:12 191:3 237:13 245:11 246:22 315:12 316:25 345:9
	topic 21:15,24 22:1 26:3 28:5 101:24 213:17 242:7,8,9		truth 345:6,6,7
	topics 20:4 23:4 265:15		try 12:8 51:19 58:20 84:7 88:11 105:18 113:21 126:21 195:25 201:21 249:22 261:23
	total 100:17 115:23 207:13		

[trying - uvaydova]

trying 25:16 29:24 61:3 71:25 72:11 73:16 86:13 91:19,22 92:22 99:2 107:8 108:21 112:3 113:16 116:5 117:13 119:6 129:11 168:22 171:14 172:8 177:21 205:1 205:12 207:5 227:12 250:14,25 254:4 262:11 290:1,7 315:7,8 318:16 324:12,18	ultimately 32:18 unable 60:18 80:6,6 94:23 187:20 301:17 unanimity 84:1 unanimously 328:21 uncertain 221:6 uncertainty 221:3 321:14,14 322:1,22 324:13,16,19 unchanging 129:9 unclear 12:20 113:19 undefined 69:15 72:22 90:24 329:10 undergraduate 15:9,18 undergraduates 19:4 underlined 106:9,10 undermines 259:9 undersell 250:15 understand 25:24 30:19 54:20 57:19 58:22 62:9 70:2,7 71:4,21 81:13,15 84:6 85:24 86:12 87:23 91:5 92:14 98:19 107:8 123:5,8 151:19 153:25 155:15,15 168:17 169:21 184:17,22 185:12 190:6 191:15 198:10 205:11 222:22 223:6 236:14 237:11 245:3 251:1 256:16 262:23 278:21 279:1 283:20 288:3,6 289:13 290:19 300:2 308:7 311:4 318:16 320:11 321:21 339:16 understanding 22:15 28:4 60:3,13,15 62:2 63:14 65:25 66:4,16 67:15 67:22 69:4,11 70:11,18 83:6,6,8 85:3 95:8 96:2 109:5 115:18 118:18,22 119:4 121:8,21 122:15 155:4 162:23 164:20 165:15,20,22 166:20,25 167:19,24 170:23,24	understanding (cont.) 182:15 184:18 192:3 209:8 214:10,12 215:10 217:21 217:25 224:13 226:24 228:2,3,10 230:7,18 234:12 234:15 236:23 248:2 277:13,19 282:11,15 292:6 295:5 298:18 303:16 304:18,20 311:9 312:22 313:4 314:12 315:25 316:4 318:2 322:8 323:3 324:24 understandings 299:1 understood 244:18 245:20 308:19 323:18 uniform 152:6,7 union 216:10 217:9,14 227:7 319:6 unique 142:21 unit 100:15 102:18 104:5,10,21 105:5 106:3,8 107:3,11 112:24 113:23 115:1,1 160:13 161:1 172:24 173:3 173:15 180:13 181:25 182:9,18 330:18 united 1:1 2:1 3:7 10:13 110:20 132:13 301:9 304:13 306:22 316:2,12 317:1 327:3 329:16 units 165:17 167:16 266:17 267:3,9,11 274:11 universal 81:16,22 universally 83:15 94:1,7 university 15:24 17:3 18:3 20:20 22:17 33:16 160:17 178:14 unpacked 90:14 unrealistic 248:25 unspecific 30:11 unstable 298:9 untethered 183:4 184:2	unwilling 327:5 updated 166:23 upfront 339:9 usd 255:7 258:13 300:18 usda 300:18 usdc 255:8 256:7,8 258:18 295:3 295:10,13,14 use 17:18 18:12 22:20 23:15 24:12 41:19 45:9 57:16 66:16 68:6,9,19 70:3 89:2 97:21 104:5 115:12 123:15 125:11 135:1 139:2 140:12 147:18 150:1,3,6,11 155:13 155:14 163:12 173:3 208:19,19 212:17 219:15 220:11 222:1 226:15,24 241:14 243:2 252:3 253:17 255:19 256:1,17 257:19 258:13,22,24 269:7,9 282:2 297:24 302:25 308:4 311:18,23 312:11,14,16 317:25 322:10 useful 60:20 132:3,5,10 usefulness 150:17 useless 183:7 user 246:2 283:18 307:14,24 users 255:9 282:16,22 283:8,10 284:16,25 338:14 uses 57:4 75:21 118:19 125:25 271:23 310:23 311:1 usual 221:4 usually 40:3 230:4 287:3 utah 25:4 utility 150:11 uvaydova 5:22
u			
u.s. 43:21 110:10 122:19,25 123:4 132:14,18 133:7 140:25 219:17,17 255:11 255:21 256:2,13,17 257:18 287:16 301:25 303:25 326:14,18 327:2,9 328:3 uh 31:8 34:10 48:19,22 66:14 78:7 89:22 90:7 95:2 121:7 135:12 151:16 154:19 163:11 172:12 177:23 185:21 200:8 215:3 226:16 231:4 242:22 333:7 335:19 339:22 340:1 342:10 uk 133:7 ultimate 29:10,25 120:15 227:16			

[vague - whichever]

v			
vague	venezuelans	visa	wanting
138:15 139:21 148:19	334:10	335:9	262:16
vaguely	verbal	visiting	wants
275:20	164:7 207:23	18:6	91:20,24 123:12 330:21
valuable	verification	vitae	war
146:15 149:6	202:5	15:3	93:21,21,22,22 94:6 97:15
value	verified	volatile	100:10
26:7 101:25 102:18 103:14	203:5,18,24	190:15 298:7 310:22	warrants
103:20 104:4 105:21 106:2	verifiers	314:14 315:16 330:25	91:15
106:9 107:4,12 113:4,6,13	203:19	331:1 334:21	washington
113:22 115:1 128:2,4 129:9	verify	volatilities	4:22
130:4 131:16,18,21 132:11	124:19,22 167:11 170:18	191:1	watch
133:12,16 134:3 135:14,18	173:5 234:23 321:18,18	volatility	203:6,18
136:1,5,12,15,21 137:14,24	verifying	130:16,24 184:19,25 185:3	waxman
138:4,10,14,19,24,25	170:15	185:4,11,22 186:9 187:1	3:10
139:11 140:6,9,21 141:1,6	versa	188:16 189:1,4,7,21 190:3	waxmand
141:12 142:18 146:2,7,23	257:1	190:12 191:16 192:1,4,7,13	3:17
149:13,18 150:1,3,3,6,11	version	192:14 253:12 309:11,13	ways
156:5,11,21,25 157:2,23	98:7 238:2 310:14	310:5,9,14,15,18,23 311:2	127:13 308:14 332:20
160:13 180:14 182:1,9,18	versus	313:12 315:11 318:3,9,14	weaknesses
183:3 184:1 188:25 252:17	10:12 38:3 39:13 124:6	331:18,19 334:24 335:22	186:11
253:5 283:13 293:1 295:22	165:3 186:6 229:12 232:16	336:4	web
297:22 298:7 334:25	335:24 339:4	volume	169:20,24 173:9 204:12
values	vesey	114:9 300:1,16 304:25	website
328:17 329:7,23	3:12	306:11	114:6 117:12 167:21
variable	vetted	voluntarily	198:10,12,18,19 204:6
286:15,16 288:10 294:3,14	109:15	334:8	212:21
295:3	viability	voting	websites
variations	248:15	55:5 167:10 235:2 236:20	114:4
133:8	viable	vs	week
varied	213:20,25 216:24	8:5	269:23,23 279:13,13
80:17 272:14	vice	w	294:12,13,13,14 295:2
varies	238:22 257:1	wait	weir
253:3,4 339:15 342:3	vicinity	12:7 84:3 139:17 187:25	38:24
variety	246:11	waiting	weiss
82:17 241:12 242:2 293:16	video	223:18	5:14
320:12,15 335:23	5:23 10:9,18 46:16 225:18	waived	welcome
various	225:25 226:8,17 343:25	345:20	29:22
162:17 171:17 191:18	videographer	wallet	went
192:1 206:13 216:14 241:7	5:23 10:5,17 65:16,19	166:21	15:9,10 48:6 134:24 135:2
269:3 278:23 343:2	102:8,11 159:7 160:2 213:6	wallets	135:3 285:8 337:19
vary	213:9 259:21,24 314:1,4	166:3,7 168:23	western
218:14	336:12,15 343:24	want	216:10 217:8,14 227:7
vast	videotaped	12:3 13:1,10 71:22 73:14	319:6
94:8 299:13 304:21	1:15 2:15	123:12 127:19 135:6,20	we've
vehicle	view	151:2 157:17 158:22 163:7	11:12 29:16 65:22 113:10
104:18 295:21 297:9 311:1	27:13 64:17 83:15 127:23	174:13 179:7 183:16	154:15 162:20 193:11
314:19 315:11,13,15 317:5	128:21 129:20,23 142:21	191:13 197:18 232:5 244:6	200:18 214:9 227:13 238:3
317:6,21,25 339:12,13	147:10 267:18 282:21	253:8 258:1 259:19 263:6	256:14 297:25 313:15
venez	290:9 291:18	288:5 313:22 320:10	322:25 343:16
334:20	views	325:23 331:25 333:25	wharton
venezuela	82:17,25 84:18,24	wanted	5:14
334:15,19,20	violates	28:11 29:2 142:19 179:25	whereof
venezuelan	80:24	259:10 282:19 284:17	345:17
125:1 128:7 133:22	virtually	297:24	whichever
	301:12		43:20

[white - years]

white 55:4 167:10 235:14,15	words (cont.) 163:10,13,21,21 164:1,2,4 171:4 191:17 199:17 206:18 208:25 216:22 249:14 265:25 270:25 322:13 327:19	wrong (cont.) 201:17 251:6 313:7 324:11	xrp (cont.) 226:18 227:4 228:4,11,25 228:25 229:11,14,18 230:7 230:18 231:3,6,6,20 233:5 233:22,25 234:6 235:1,13 235:14,24,25 236:1,7,18 237:13 243:13 252:21 253:3,6,6,12 257:10,13,20 258:24 259:4,11 266:16,18 267:1,4,8,11,13,14 269:10 270:3,4,8,9,11,12,23 272:14,16,22,25 273:1,3,17 273:23 274:10,12,15,22,23 275:10,24 276:7,9,18 277:2 277:3,5,20 278:8 279:1 280:2,4,12,13,18,19 281:25 282:6 283:10,13 284:1,3 285:12,14 286:13 287:4,24 290:8,10,23 291:4,6,19,24 292:17 293:9,14 294:2,14 294:21,24 295:21,25 309:9 309:11,25 310:5,10 311:5 312:18 313:1,10,13,13 314:9 315:12,24 320:7 321:7,15,17,19 322:6,23 324:13,19,25 326:4,15 327:10 328:4,9,15,22 329:5 329:22 330:3,6,7,8,14,16 330:18,24,25 331:16 333:1 333:9,10,12,23,24 334:3 335:7,24 336:4
wholesale 221:5 318:5 319:5 343:13	work 22:9 33:16 34:8,13 40:1 49:4,6,8,12 50:23 51:22 52:1,5,6,13,22 56:4 62:12 64:25 66:12 71:3,17 73:17 78:12 110:14 129:14,15 177:2 202:7 233:7 234:18 234:20,23,25,25 236:1,15 236:17,18 248:12,13,19,24 249:2 259:4 295:5	wrote 129:13 131:7,10 164:17 194:15 195:3 218:5,11 250:25 253:25 274:18 277:2 278:21 321:8	
whoops 231:15		x	
wide 95:16 106:4	worked 18:23 33:12 34:23 35:7,15 38:14 40:19 54:14 72:19 304:12	xr 127:5,5 312:23	
widely 83:10 94:2 244:17 339:16	working 6:19 7:21 24:10 32:10,12 32:17,21,25 36:5,17 40:19 49:20 53:22 54:1 65:24 66:12 72:1,13 176:2 224:8 294:19	xrapid 209:22,24 211:5,14	
widest 110:6		xremit 209:19	
willing 28:15 96:23 97:23 99:3 122:2 172:10,15 175:1 189:5 277:17 327:16	workplace 34:1,2	xripple 209:18	
wire 255:10	works 198:9,11 199:19 224:14 225:3 226:15 235:8 282:3 288:21 303:20	xrp 43:7 48:12 54:3 56:22 59:22 61:4,9 68:15 69:21 70:22 71:7 73:16 74:11 85:10,16 86:2,16 87:2,11 87:16 92:2,2,3,9 98:6,10,11 98:22 104:19,20,20,22 111:17 112:4,11,18,22,24 113:4,5,12,13,22,23 114:8 114:16,21,21 115:14,23 117:25 118:9,15,19 119:11 119:19 120:3 121:6 122:7 122:10,23 123:3,12,25 124:6,9,15 125:3,12,25 126:5 127:1,1,5,6,8,14,19 128:10,11 129:4,5 130:7,21 131:1,5,12,16,18,21 132:18 133:9,12 135:23 136:14 139:10,11,13 140:21 143:9 144:20 145:1,18 147:10,15 147:22 148:3,15 149:4 150:15,19 151:14,20 152:1 152:7,10,15 153:3,6,10,15 154:3,7,22 155:5,19,21 156:4,17 157:2,8,18,22 162:17,21,24 163:8 164:10 164:21,24 165:9,17 166:2,7 167:1,3,9,10,12,14,17,24 168:6,10,23,24 169:10,14 170:7,17,18,25 171:1,5,16 172:1,7,10,11,15 173:3,13 181:25 182:17 183:21 188:15,15,24 189:3,20 192:7,13,25 193:4 197:3,6 202:4 205:2 206:18,19,25 207:2,4 208:8 209:17 212:17 214:24,25 219:13 219:15,18,19 220:3,7,11,14 220:22 221:24,25 222:1,10 222:11,14 223:13 226:15	
wisdom 244:3	world 87:12,18 93:21,21 94:6 97:15 100:10 136:2 153:11 154:4,8,21 155:20 162:22 162:25 163:9 164:11,22,25 166:23 176:16 206:10 207:9,11,11 211:10 215:13 306:2 331:2 340:8,10		
wisely 119:4	world's 142:16 315:14		
withdraw 296:19	worldwide 93:19 125:12 207:12		
withdrawals 255:9	worry 319:17		
withdrew 239:6	worse 295:21		
witness 4:14 6:2 9:3 11:3 28:12 34:4 96:7 102:3 111:1 116:13 130:13 133:2 139:18 144:9 156:2 159:6 178:9 179:18 187:11 189:11 193:24 206:9 209:14 213:5 223:3 230:15 231:15 232:11 237:20 254:14 282:10 284:23 292:14 296:24 307:21 309:5 313:25 336:20 342:18,20 345:4,17	writing 41:16 265:17		
witnesses 11:11	written 32:4 38:21,22,23 47:19 56:20 107:2 108:1,2,7,7 151:18 235:15 335:12		
witness's 345:10	wrong 169:16 188:7 190:22		
wonder 39:9			
woodford 160:15,19 161:14 162:5			
word 70:3 224:19 260:21 277:9 323:2			
wording 181:22			
words 14:25 127:1 131:15 157:23			
			yap 144:14
			year 19:5 22:5 29:4 32:15 36:22 45:2 47:18 49:22 55:7 74:6 76:20 78:4 85:15 108:3 114:10 121:1 124:5 145:7 154:14 165:25 166:11 183:16 194:3 202:21 208:6 208:15 209:20 226:11 228:9 230:16 231:1 252:8 254:21 263:19 291:13 292:9 298:25 302:24 303:10 312:16 317:12 340:3
			year 292:3 334:23
			years 19:8 20:21 23:25 26:4 33:24 76:3 80:5 132:19 231:25

[yen - zhang]**yen**

91:17,18,19,23 92:1,4,7,9
 92:17,23 93:1,2 97:17,20
 97:20 104:15,16,19,20,22
 105:1 124:15 190:15
 228:25 229:3,4 231:6
 297:25 298:1 303:14
 315:18

yermack

6:20 176:4 178:1,2,13
 180:4,10,11,21 181:24
 183:25 184:3 186:24
 188:14 190:10,14 191:16
 193:19

yermack's

183:12

york

1:2 2:2,17,18,21 3:8,11,14
 3:14 4:8,8 5:8,8,17,17
 10:15,22,22 18:23 178:14
 345:1,3

z**zero**

138:25

zeroes

221:21

zhang

24:19,20 25:1,6

Exhibit 31

1. I am the Executive Vice President and Chief Financial Officer of MoneyGram International, Inc. ("MGI" or the "Company"), a money transfer company based in the United States with headquarters in Dallas, Texas. As part of my job responsibilities, I am familiar with the transactions discussed below.
2. MGI is a leading global financial technology company that provides services around the world. The Global Funds Transfer segment is our primary revenue segment, providing immediate money transfer services and bill payment services with pricing considerably lower than banks to banking customers as well as unbanked and underbanked customers. Our money transfer services accounted for 87% of MGI's total revenue for the year ended December 31, 2019. The majority of our remittances constitute transactions in which cash is collected by one of MGI's agents and funds are made available for pick-up at another agent location. The Company also offers digital money transfer solutions directly to consumers, who access the service through a mobile app, the Company website, and funded through a debit card, credit card, or direct debit from a bank account or mobile wallet. Typically, the designated recipient may receive the transferred funds within ten minutes at any MGI agent location, and in the case of the Company's mobile solutions, in a bank account or mobile wallet.
3. To meet our consumer obligations, MGI must have sufficient highly liquid assets at all times and be able to move funds globally on a timely basis. On average, we receive and pay out a similar amount of funds on a daily basis to collect and settle the principal amount of our payment instruments sold, as well as related fees and commissions with our end-consumers and agents. We preposition cash in various countries and currencies to facilitate the settlement of our transactions, which we accomplish with foreign currency trades. On

average, MGI typically has over \$250 million in working capital to support its settlement in foreign currencies, and approximately \$120 million of foreign currency prefunds in selective countries each day.

4. In 2017, MGI was operating an internal lab exploring use cases for blockchain technology.
5. In 2017, a California based company, Ripple Labs, Inc. ("Ripple"), and MGI began discussions regarding a proposed commercial relationship in which MGI would utilize Ripple's blockchain technology and the digital asset XRP to facilitate cross border transactions.
6. From February 2018 through March 2019, MGI conducted a series of pilot tests using Ripple's ODL platform to determine whether MGI could benefit from utilizing XRP and Ripple's blockchain technology. The pilots involved MGI sending a series of small transactions in XRP in the ordinary course of MGI's foreign exchange ("FX") trading. In total, MGI conducted approximately 13 trades involving XRP, each for the U.S. dollar equivalent of approximately \$100 each for a grand total of \$1,225. Twelve of the trades consisted of MGI purchasing XRP with U.S. dollars ("USD") and then selling XRP to buy Mexican pesos ("MXN"). MGI also had one test that involved purchasing Euros with XRP.
7. The results of these pilot tests showed that the speed of the cross-border transactions was faster using XRP than the company's traditional FX transactions, but that MGI recognized significantly higher trading costs by using XRP as a bridge asset in the above FX transactions. Specifically, the average spread for the XRP trades was approximately 68 basis points ("bps") for the MXN market, whereas the cost of traditional FX trading was less than 5 bps in the same market.

8. In addition to the larger spreads, MGI also saw higher volatility in the XRP trades as compared to traditional FX trading because of the relatively larger changes in the exchange rate between XRP and fiat.
9. Based on the results of these pilot tests, MGI concluded that the use of XRP in the ODL platform was cost prohibitive to MGI's business.
10. In 2018 and early 2019, MGI represented to Ripple – including its senior management – that the pilot tests did not produce better economic results for the Company than MGI's existing FX trading practices due to the excessive cost of transacting in XRP.
11. In August 2018, Ripple responded to MGI's concerns by suggesting that a commercial agreement – including an integration of MGI's system with the ODL platform – would solve most of MGI's issues relating to XRP trade execution. By creating reliable XRP transaction flows as a result of the proposed agreement, Ripple also claimed that it could develop a network of trading counterparties and prioritize certain foreign currency markets over time, thereby ensuring that MGI could execute transactions in the same manner as its existing FX trading.
12. On June 17, 2019, MGI entered into a Securities Purchase Agreement (the "SPA") with Ripple pursuant to which it sold MGI common stock, par value \$0.01, ("Common Stock") and a Warrant to purchase Common Stock at a per share purchase price of \$4.10 to Ripple, for a total consideration of \$30 million (collectively, the "Equity Investment"). Under the terms of the SPA, at any time through June 30, 2020, MGI had the right to require that Ripple purchase up to \$20 million in additional Common Stock and Warrants to purchase Common Stock at a per share price of at least \$4.10 per share.

13. On June 17, 2019, the same day it entered into the Equity Investment, MoneyGram Payment Systems, Inc. (a wholly-owned subsidiary of MGI, “MPSI”) and Ripple entered into a Ripple Master Hosted Services Agreement and Work Order relating to Ripple’s ODL platform (the “Commercial Agreement”). Based on discussions between the two companies, MGI understood that Ripple’s primary interest at the time was in the Commercial Agreement with MGI rather than its Equity Investment.
14. The fact that Ripple agreed, as part of the Commercial Agreement, to reimburse MGI sufficiently to be within 5 basis points of the prevailing Reuters Benchmark spot FX rate (“spot market foreign exchange rate”) on each transaction (such difference largely attributable to XRP market inefficiencies, volatility and exchange fees), meant that MGI would not incur the excessive costs of trading XRP that MGI had experienced in the pilots during 2018 and 2019.
15. Under the terms of the Commercial Agreement, Ripple agreed to make the Ripple ODL platform available to MPSI (the “Hosted Services”) and provide related support services and training to MPSI (the “Support Services”). Neither MGI nor MPSI pays any fees to Ripple for the Hosted Services or Support Services.
16. Pursuant to the terms of the Commercial Agreement, MPSI is to “...use commercially reasonable efforts to deploy and use the Hosted Service to send and receive cross-border payments...” Depending on the volume of USD equivalent purchases of XRP that MPSI transacts during the term of the Commercial Agreement, Ripple Services will pay MPSI certain amounts of XRP as set forth in the Commercial Agreement as compensation for MPSI’s services. Effectively, MPSI is compensated for developing and bringing liquidity to the XRP marketplace and providing a reliable level of foreign exchange trading activity with

XRP. MPSI achieves this liquidity by executing purchases and sales of XRP on a daily basis on third party exchanges around the world that facilitate the trading of XRP.

17. From January 1, 2020 through November 30, 2020, MGI traded the USD equivalent of \$2,085,197,587 of XRP through the ODL platform. The XRP transacted by MPSI in connection with the ODL platform is purchased and sold through public digital asset exchanges. MGI does not know the identities of the counterparties but believes they are parties other than Ripple.
18. During the course of operating under the Commercial Agreement, MGI learned that Ripple's primary and possibly sole source of revenue was selling XRP pursuant to its "drip program," which is Ripple's systematic approach for slowly selling XRP into the marketplace. As a result, it was in Ripple's best interest to market and promote XRP by providing potential users of XRP with proven use-cases for the utility of XRP, as well as to increase the overall liquidity of XRP with multiple commercial users of the product, thereby creating a deeper and more liquid marketplace for the buying and selling of XRP.
19. Based on this understanding, MGI views itself as providing a distinct service to Ripple under the Commercial Agreement, which is to provide the XRP marketplace with liquidity by executing consistent purchases and sales of XRP, on a daily basis on third-party exchanges. MGI has not paid any compensation to Ripple at any point in the arrangement and has no obligation to do so under the Commercial Agreement.
20. As discussed below, Ripple compensates MGI in XRP for its use of the ODL platform, but Ripple does not sell any XRP to MGI for MGI's uses on the ODL platform—rather, MGI buys and disposes of the XRP on third party exchanges. MGI does not hold XRP for any meaningful amount of time, and XRP is not utilized as part of consumer transactions in any

way, nor are these customers aware that XRP is being used by MGI to as part of its back office foreign currency trading.

21. MGI is being compensated by Ripple, pursuant to the Commercial Agreement, in XRP based on the amount of fiat currency transacted through the ODL platform. As discussed below, there are three distinct types of payments specified in the Commercial Agreement related to such services: Net Rebates, Performance Bonuses and Market Development Fees.
22. Ripple has guaranteed that the exchange rates charged by the ODL platform will be within 0.05% (5 basis points) of the spot market foreign exchange rate at the time of each transaction, inclusive of all XRP trading spreads, volatility and exchange fees. In order to ensure this guarantee is met, there are certain make-whole provisions in the Commercial Agreement whereby Ripple will pay XRP to MGI to meet the requirements of the Commercial Agreement ("Net Rebate"). The Net Rebate is paid to MGI in XRP and is withdrawn daily from a designated digital asset wallet. In the event that the daily net exchange rate difference is favorable to MGI – in other words, if the ODL exchange rate was better than the spot FX rate – then no Net Rebate is required to be made by MGI to Ripple.
23. In addition to the Net Rebate, Ripple has also incentivized MPSI under the Commercial Agreement by paying performance bonuses. Ripple initially agreed to pay MPSI an amount of XRP equal to USD \$3,500,000 if the XRP transaction volume met or exceeded \$30,000,000 on or before March 31, 2020 (the "Performance Bonus").
24. Ripple pre-funds wallets with XRP so that MPSI may withdraw, on a daily basis, the XRP that Ripple pays MPSI under the Commercial Agreement. After withdrawing the Net Rebate, Performance Bonuses, and Market Development Fees paid by Ripple in XRP, MPSI exits these XRP positions typically within one trading day from when the payment is

received, or as soon as possible due to holidays or operational impediments. MPSI is not permitted to use XRP withdrawn from the wallet to buy foreign currency on the ODL platform.

25. On September 25, 2019, MPSI and Ripple entered into an amendment to the Commercial Agreement. In the first few months of operating under the Commercial Agreement, the parties had recognized the challenges of achieving the original contemplated transaction volume levels. As a result, this amendment accelerated a \$3.5 million bonus to MPSI from March 31, 2020 to September 30, 2019 if the transaction volume in XRP traded by MPSI reached \$15 million, as opposed to the previously agreed \$30 million.
26. The parties also agreed to amend the impact of a provision addressing the impact of MPSI using a non-ODL product that utilizes a cryptocurrency as a bridge currency for cross-border settlement; previously, such an action would have resulted in a reduction of fees payable to MPSI under the Commercial Agreement, but the September 2019 amendment made this a material breach of the Commercial Agreement.
27. On November 22, 2019, the remaining \$20 million equity investment was made by Ripple at a purchase price of \$4.10 per share.
28. On December 31, 2019, the parties entered into an amendment to the Commercial Agreement. This amendment, among other changes, added new bonus opportunities, adjusted certain bonus related thresholds, and added a \$5 million bonus payable to MPSI at the end of 2019. MGI was no longer identified as a customer of Ripple, but instead was referred to as the "Service Provider" for Ripple under this revision to the Commercial Agreement.

29. The December 2019 amendment to the Commercial Agreement also added terms intended to encourage MPSI's utilization of RippleNet.
30. In June 2020, Ripple expressed a desire to further amend the Commercial Agreement to significantly reduce the volume of XRP transacted by MGI under the existing agreement. This was due to the projection of further increases in MGI trading volume on the ODL platform, and the widening of spreads against the spot market foreign exchange rate, which increased the cost of the make-whole payments to MGI. The inability of Ripple to support the volume of trading, especially in PHP and AUD, resulted in widening of spreads required by counterparties to accept the higher volumes. In addition, Ripple also requested that any trade in excess of 300 basis points over the spot rate would be denied, so as to limit their exposure if FX spreads continued to deteriorate. MGI understood, based on conversations with Ripple, that this amendment was intended to significantly reduce Ripple's costs under the Net Rebate provision of the Commercial Agreement.
31. In a June 16, 2020 amendment to the Commercial Agreement, MPSI agreed to the XRP volume reduction and in exchange, Ripple agreed to offset the decrease in XRP volume with an increase in the percentage of transaction volume to be paid as fees to MGI from 0.75% to 4.0%. The parties also agreed to reduce the total maximum amount that could be earned by MGI under the Commercial Agreement from \$110 million to \$100 million. In addition, the amount of XRP earned by MGI under the agreement would be converted to U.S. dollars at the daily market rate.
32. From the start of the Commercial Agreement, MGI understood that Ripple had financial arrangements with market makers trading XRP at digital asset trading platforms in the receiving country of a cross-border payment to ensure sufficient liquidity for MPSI's

transactions using ODL. MPSI increased volume and sent payments to specific countries that corresponded to the liquidity and infrastructure that Ripple had created through agreements with these market makers and other strategic partners.

33. From January 1, 2020 through November 30, 2020, Ripple has paid \$38,639,885 in XRP to MPSI in market development fees and \$10,101,545 in Net Rebates intended to ensure that the exchange rates charged by the ODL platform would be within 0.05% (5 basis points) of the spot market foreign exchange rate. MPSI has sold all of the XRP received from Ripple on public digital asset exchanges.
34. One potential future benefit identified by the parties at the outset of the Commercial Agreement was that if such trading were performed by MPSI at “scale” (i.e., a significant majority of its total foreign currency trading is performed through ODL), MPSI might be able to pre-position less capital around the world and thereby achieve significant cost savings through this less-capital intensive process.
35. MGI had only achieved a level of trading volume that could be considered reflective of “scale” for two currencies during the term of the Commercial Agreement: Mexican pesos (“MXN”) and Philippine pesos (“PHP”). Even at the peak of MGI’s XRP trading in May-June 2020, MGI was not able to actually reduce the working capital in those foreign markets necessary to support trading. This is due to the capital required to provide liquidity to the crypto-exchanges, and insufficient XRP liquidity in the public markets. Also, MGI’s risk management protocols discourage the use of a single counterparty as the sole source of sourcing an individual currency.

36. As a result of the inability to achieve scale under the Commercial Agreement, MGI has not yet realized any cost savings from reductions in working capital needs – or any other transaction-related cost savings – from its arrangement with Ripple.
37. The lack of cost savings is due to the off-market execution of FX trading on the ODL platform, and the high level of fees that are required for each ODL transaction. In addition, MGI's trading experience is consistently 5 basis points off the spot market in all currencies, for which MPSI is not reimbursed under the Commercial Agreement.
38. In a traditional foreign exchange trade, MGI enters into a trade with a commercial bank to sell fiat currency and purchase a secondary fiat currency. For highly liquid currencies, such as the Euro, MGI would pay 1 basis point (0.01%) of the notional amount of the transfer as the foreign exchange spread to sell one fiat currency and buy the second fiat currency. MGI also incurs a flat fee of \$15 to transfer funds cross border which does not vary, regardless of the size of the transaction.
39. When MGI transfers funds using the ODL platform, it has to pay fees to both the third party digital asset exchanges who facilitate the exchange of fiat currency to XRP as well as the second digital asset exchange converting the XRP to fiat currency. These fees are variable based on the individual exchange and can be a fixed fee rather than basis points of the notional amount of the transfer. MGI has been required by Ripple to include frequent and very small (typically less than \$50,000) trades in its integration with the ODL platform. This requirement was due to a lack of liquidity in the market, and also because large XRP trades were more expensive versus the spot market foreign exchange rate and sometimes difficult to execute. In addition, Ripple was unable to establish FX counterparties capable of placing trades above \$50,000. Because MGI has had to trade very small amounts, the exchange fees

have averaged 15 basis points (0.15%) of the notional amount of the transfer. Additionally, MGI has incurred a foreign exchange spread to sell one fiat currency and buy the second fiat currency. Since the XRP foreign exchange markets are immature markets with limited liquidity, MGI typically pays 50 to 70 basis points (0.5% to 0.7%) of the notional amount of the transaction, prior to the reimbursement under the Net Rebate provision of the Commercial Agreement.

40. To take an example,¹ if MGI wanted to send a notional value of approximately \$1,000 USD and convert it to MXN using the traditional commercial bank transfer system, MGI would incur a \$15 bank transfer fee and approximately \$2.25 from the estimated average FX spread, for a total cost incurred of \$17.25. For an equivalent transfer using the ODL platform, MGI would incur a fee of approximately \$22.63 at the third-party US exchange; a fee of approximately \$11.22 at the third party Mexico exchange; and the estimated average FX spread would be approximately \$122.90, for a total cost incurred of \$156.75. The impact of the fixed fees is magnified because MGI will typically trade more than \$1.0 million at a time in traditional markets, vs less than \$50,000 in an ODL trade. For the same transaction, Ripple pays MPSI Rebate Fees of approximately \$145 as well as a Transaction Fee of \$560, generating a profit to MGI of \$548.25 – despite the fact that the actual cost of the transaction itself is significantly higher using the ODL platform.

41. MGI has repeatedly communicated to Ripple the lack of transaction-related cost savings from the ODL platform, without including the incentive payments. In addition, Ripple was constantly made aware of the lack of transaction related costs saving from the platform due to the large amount that Ripple was required to pay under the Net Rebate provision of the

¹ For purposes of this illustration, these scenarios assume that the foreign exchange rates remain constant.

Commercial Agreement. Ripple was tracking their make-whole payments, and proactively taking steps to reduce that stress on their company.

42. As MGI has disclosed publicly, the company achieves significant financial benefits from using the ODL platform. However, these benefits are not due to any reduction in transaction-related or prefunding costs. Instead, the benefits are entirely due to the substantial incentive payments provided by Ripple to MGI. The Commercial Agreement provides a net cash benefit to MGI because the company is largely made whole on the excessive costs from transacting in XRP as opposed to traditional FX transactions, and in addition to these make-whole (Net Rebate) payments MGI also receives significant compensation based on the volume of XRP that MGI trades.
43. Based on discussions with MGI, Ripple and its senior management are aware of the lack of transaction-related cost savings and the lack of prefunding savings from MGI's use of the ODL platform.
44. As of the date of this declaration, the Commercial Agreement has been terminated by both parties effective March 7, 2021.

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

Executed on: 3-14-2021



Lawrence Angelilli

Exhibit 32

**UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK**

REBUTTAL REPORT OF [REDACTED]

November 12, 2021

Securities and Exchange Commission v. Ripple Labs, Inc. et al.
Index No. 1:20-CV-10832-AT

TABLE OF CONTENTS

I.	INTRODUCTION	4
A.	QUALIFICATIONS.....	4
B.	BACKGROUND.....	5
C.	DOCUMENTS CONSIDERED.....	6
II.	REBUTTAL OF DEFENDANTS’ EXPERTS’ OPINIONS ON CURRENCY	7
A.	ASSIGNMENT	7
B.	SUMMARY OF OPINIONS.....	7
C.	WHAT IS CURRENCY?.....	10
D.	XRP IS NOT A MEDIUM OF EXCHANGE AS DEFINED FOR CURRENCIES ...	14
E.	XRP IS NOT A STORE OF VALUE AS DEFINED FOR CURRENCIES	16
F.	XRP IS NOT A UNIT OF ACCOUNT AS DEFINED FOR CURRENCIES.....	18
G.	THE OSLER REPORT MISCHARACTERIZES XRP AS A CURRENCY	21
i.	The Osler Report Fails to Establish that XRP is Regularly Used as a Medium of Exchange	21
ii.	The Osler Report Fails to Demonstrate that XRP is Used as a Unit of Account ...	24
iii.	The Osler Report Fails to Establish that XRP is a Stable Store of Value	24
iv.	Other Attributes Cited by the Osler Report are not Unique to Currencies.....	25
v.	XRP is not a Medium of Exchange, Even if Certain Payments Can be Made Using XRP via Payment Processors	27
H.	THE FERRELL REPORT MISCHARACTERIZES XRP AS HAVING THE SAME FUNCTIONS AS MONEY	29
i.	The Ferrell Report Does Not Show that XRP is Commonly Used as a Medium of Exchange	29
ii.	The Ferrell Report Does Not Show that XRP is Commonly Used as a Unit of Account	30
iii.	The Ferrell Report Does Not Show that XRP is Used as a Store of Value.....	30
I.	XRP IS NOT USED AS A MEDIUM OF EXCHANGE FOR RIPPLE’S ON-DEMAND LIQUIDITY PRODUCT	31
III.	REBUTTAL OF PROFESSOR FERRELL’S OPINIONS ON RIPPLE’S IMPACT ON XRP PRICE AND LIQUIDITY	34
A.	ASSIGNMENT	34
B.	SUMMARY OF OPINIONS.....	34
C.	RIPPLE’S EFFORTS TO INCREASE XRP LIQUIDITY ARE CONSISTENT WITH INCREASING XRP PRICE.....	36

D.	RIPPLE AND ITS EXPERTS HAVE COMMUNICATED THIS POSITIVE RELATIONSHIP BETWEEN LIQUIDITY AND PRICE.....	40
E.	PROFESSOR FERRELL’S REGRESSION ANALYSIS ON XRP DISTRIBUTIONS AND PRICES IS FLAWED BOTH EMPIRICALLY AND CONCEPTUALLY	43
i.	Regression Uses Nonstandard 28-day Event Window	43
ii.	XRP Distributions are Denominated in U.S. Dollars Rather Than XRP Units.....	44
iii.	Regression Analysis Fails to Account for Ripple’s Active Management of XRP Distributions	45
iv.	Timing of XRP Transfers May Not Be Consistent with Sales of XRP	46
v.	The Ferrell Regression Analysis Does Not Account for the Long-Run Effect that XRP Distributions Have on Increased Liquidity, Recognition, and Demand.....	47
IV.	APPENDIX A: CURRICULUM VITAE	50
V.	APPENDIX B: RECENT TESTIMONY AND COURT-FILED EXPERT REPORTS.....	60
VI.	APPENDIX C: LIST OF DOCUMENTS RELIED UPON	61
VII.	APPENDIX D: TOP 100 RETAILERS.....	65
VIII.	APPENDIX E: ANALYZED PURPORTED “USE CASES” FROM APPENDIX C OF ADRIAENS REPORT	69

I. INTRODUCTION

A. QUALIFICATIONS

1. I am a Professor of Finance and the [REDACTED]
[REDACTED] I have also served on the faculty at
[REDACTED], and
[REDACTED] I received a B.A. in Economics from [REDACTED] a M.S.
in Finance from [REDACTED] and my Ph.D. in Finance from [REDACTED]
[REDACTED] I have been teaching investments to undergraduate and Ph.D. students over
the last twenty-four years. I have also taught international finance to undergraduate and MBA
students at [REDACTED] and the [REDACTED] I am a past
President and Vice-President of the [REDACTED] former director
of the [REDACTED] and current
President and former Vice-President of the [REDACTED]

2. My research focuses on forensic finance, with specific interest in [REDACTED]
[REDACTED]
[REDACTED] I have published 30 papers, mostly in the [REDACTED]
[REDACTED]
and have been cited over [REDACTED] according to Google Scholar. In the [REDACTED] my
[REDACTED] on [REDACTED]
was published in [REDACTED] and has been extensively featured in over [REDACTED] media
outlets around the world including Bloomberg, The New York Times, The Wall Street Journal,
and The Financial Times. I have published eleven papers related to international finance, mostly
in top finance journals that deal with various aspects of international financial markets including
currencies. I have also taught International Finance to undergraduate and MBA students for over

10 years, during which I lecture on the many aspects of currencies as they are a central component to studying international finance.

3. [REDACTED]

[REDACTED] I have advised and consulted for the U.S. Department of Justice, the Securities and Exchange Commission, the Commodity Futures Trading Commission, state-level enforcement and regulatory entities, and private parties.

4. My curriculum vitae, attached as Appendix A to this report, provides more details about my educational and professional background and experience, as well as a list of my publications in the last ten years. A list of cases for which I have provided testimony or submitted court-filed expert reports in the past four years is attached as Appendix B. I have been compensated at a rate of \$700 per hour for my personal time and I have been assisted by employees of Integra FEC [REDACTED]. My compensation is not contingent upon the findings of this report or outcome in this or any other matter. The use of “I” in this report includes all analyses of data performed by the staff of Integra FEC under my direction and oversight. My opinions are based on my own understanding of the analysis and results presented in this report.

B. BACKGROUND

5. I have been engaged by the Securities and Exchange Commission (“SEC”) to provide expert testimony in the matter of *Securities and Exchange Commission v. Ripple Labs, Inc., et al.* pending in the United States District Court for the Southern District of New York. On October 4, 2021, I submitted a report to this court titled “Expert Report of [REDACTED] (the “Original Report”), which detailed my analysis demonstrating that Ripple Labs Inc. (“Ripple”), Christian Larsen (“Larsen”), and Bradley Garlinghouse (“Garlinghouse”) (i) took specific steps to

influence XRP prices, (ii) were incentivized to attempt to influence XRP price to maximize proceeds raised from sales of XRP, and (iii) relied on XRP sales to supplement operational expenses in a manner similar to how companies use equity.

6. I have now been asked by the SEC to examine and opine on certain opinions in the Expert Report of Prof. Carol Osler (“Osler Report”) and the Expert Report of Allen Ferrell, Ph.D. (“Ferrell Report”). The specific opinions on which I have been asked by the SEC to opine on are detailed under “Assignment” of each section. I have not been asked to review any other topics in the Osler Report or the Ferrell Report, nor to respond to the opinions expressed in reports of Defendants’ other expert witnesses.¹

C. DOCUMENTS CONSIDERED

7. The documents, data, and other information that I have relied upon as the basis for my opinions are cited in this Report and listed in Appendix C. These include, but are not limited to, Ripple internal communications, Ripple’s quarterly XRP Market Reports, Appendix C from the Expert Report of Peter Adriaens, and academic literature on currency and asset pricing.

8. It is possible that I may review additional new information that may become available later, as well as the reports and depositions of other experts. I reserve the right to supplement my report and analyses based on any additional evidence, including any evidence brought to my attention by the defense, other experts, or obtained through discovery.

¹ While I have not been asked to comment on any opinions from the Expert Report of Peter Adriaens (“Adriaens Report”), this rebuttal report references the “Use Cases” listed in Appendix C of the Adriaens Report as provided by defense counsel.

II. REBUTTAL OF DEFENDANTS' EXPERTS' OPINIONS ON CURRENCY

A. ASSIGNMENT

9. The SEC has asked me to examine opinions in the Osler Report and Ferrell Report pertaining to whether XRP functions as a currency. Specifically, I have been asked to comment on the Osler Report's assertion that "XRP fits the economic definition of a 'currency'"² and the Ferrell Report's assertion that "XRP has the same function as money."³

B. SUMMARY OF OPINIONS

10. Based upon (i) my understanding of the academic literature on currency (ii) my analysis of the nature of XRP usage and (iii) my academic research and expertise in economics and international finance, I conclude that XRP does not fulfill the economic definition of a currency because it does not commonly perform *any* of the three primary functions of a currency according to economists: a medium of exchange, unit of account, and store of value.^{4,5} The facts I have reviewed reflect the following, among others:

- a. Professor Mankiw's *Principles of Economics* specifies that a currency, or money, is "the set of assets in the economy that people **regularly use** to buy goods and services (emphasis added)" and "that are **regularly accepted** by sellers in exchange for goods and services (emphasis added)."⁶ Other leading textbook definitions also concur that

² Expert Report of Carol Osler at 3.

³ Expert Report of Allen Ferrell, Ph.D. at 71.

⁴ The main definition for a currency in this report is the same source cited in both the Osler Report and the Ferrell Report: Mankiw, N., *Principles of Economics*, 8th edition, 2016 at 604-605.

⁵ Throughout this report, I frequently use the present tense as a stylistic preference; however, unless otherwise indicated, my report covers the period from when Ripple began selling XRP in 2013 to the filing of the complaint in this action, December 22, 2020.

⁶ Mankiw, N., *Principles of Economics*, 8th edition, 2016 at 604-605.

a currency, or money, “is anything that is *generally accepted* in payment for goods or services or in the repayment of debts (emphasis added)”⁷ and is “*generally accepted* means of payment (emphasis added).”⁸ A currency has three primary functions in the economy: commonly accepted medium of exchange, unit of account, and store of value.

- b. XRP is not a commonly accepted medium of exchange for the purchase of goods or services nor in processing payments for goods. None of the largest retailers in the U.S. nor the major payment processors accept XRP as a medium of exchange.
- c. XRP does not function as a unit of account because XRP is not generally used to quote the prices and values of goods and services, nor is it used in financial reporting. Even Ripple’s own quarterly XRP Market Reports, which publicly disclosed the amount of XRP that Ripple sold each quarter, quoted Ripple’s sales in U.S. Dollars, not XRP.
- d. XRP is not a reliable or stable store of value. XRP is not suited for such purposes because its price is at least 11 times more volatile than any of the top ten most traded fiat currencies in the world.
- e. The Osler Report makes the erroneous conclusion that “XRP fits the economic definition of a ‘currency’” by pointing to hypothetical or rare use cases while ignoring that currencies must be *regularly* and *generally* used to buy goods and services. The Osler Report identifies rare use cases where XRP “can be” used to pay

⁷ Mishkin, Frederic S. and Serletis, Apostolos. The Economics of Money, Banking and Financial Markets (4th Canadian ed.). Toronto: Pearson Addison Wesley, 2011 at 43.

⁸ Krugman, Paul; Obstfeld, Maurice; Melitz, Marc, International Economics: Theory & Policy, 9th edition, 2012 at 355-356.

for goods and services.⁹ Yet, that something “can be” used as a medium of exchange does not satisfy the economic definition to qualify as a currency. The same authoritative source used by the Osler Report to define a currency, Professor Mankiw’s *Principles of Economics*, specifies that a currency must be “regularly use[d]” and “regularly accepted.”¹⁰ XRP is neither regularly used nor regularly accepted.

- f. Professor Osler also asserts that currencies can be highly volatile and points to the Venezuelan Bolivar. However, currencies like the Bolivar that are poor stores of value can continue to exist as currency because the Venezuelan government requires and designates the Bolivar as legal tender. In contrast, XRP is not designated legal tender nor government-backed like traditional fiat currencies and thus is not required to be accepted as a medium of exchange. Professor Osler also fails to acknowledge that Venezuelans commonly transact goods in other more stable foreign currencies such as the U.S. Dollar even within Venezuela and, in 2020, even Venezuela legalized U.S. Dollar based transactions.¹¹ Moreover, XRP is even more volatile than the Venezuelan Bolivar, further demonstrating its weakness as a potential currency.
- g. The Ferrell Report similarly asserts that XRP “can be” a medium of exchange, “can be” a unit of account, and “can be” a store of value. However, many non-currency assets in the world such as Apple stock or pieces of silver can be exchanged, can be used to express prices, and can be a store of value, but hypotheticals do not make

⁹ Expert Report of Carol Osler at 5.

¹⁰ Mankiw, N., *Principles of Economics*, 8th edition, 2016 at 604-605.

¹¹ Saving, Thomas. Can Cryptocurrencies Successfully Compete in the Money Market?, PERC Policy Study 2102.

them currencies. Even items such as airline miles that can function in a limited capacity to pay for flights are not currencies because they are not *generally accepted* as payment for other goods and services. The reality is that XRP units are not regularly used today because XRP does not perform any of the three traditional functions of currency, and speculating on what “can be” is irrelevant to whether XRP *is actually currently* a commonly accepted medium of exchange, unit of account, and store of value.

C. WHAT IS CURRENCY?

11. The traditional definition used by economists, as according to Professor Mankiw’s Principles of Economics, to define currency, or money, is “the set of assets in the economy that people *regularly use* to buy goods and services from each other (emphasis added)” and “that are *regularly accepted* by sellers in exchange for goods and services (emphasis added).”¹² And Professor Mankiw further describes a currency as serving three primary functions: a commonly accepted medium of exchange, a unit of account, and a store of value.¹³ These same functions, from Professor Mankiw’s Principles of Economics, are also cited in the Osler Report. The Ferrell Report cites a similar definition from Professor Mankiw’s Macroeconomics textbook.¹⁴ This definition of money is consistent across other leading economics textbooks, including by Professors Krugman et al. who define money as a “*generally accepted* means of payment (emphasis added)”¹⁵ and by Professors Mishkin and Serletis who state that money is “anything

¹² Mankiw, N., Principles of Economics, 8th edition, 2016 at 604.

¹³ Mankiw, N., Principles of Economics, 8th edition, 2016 at 604-605.

¹⁴ Expert Report of Allen Ferrell, Ph.D. at 7.

¹⁵ Krugman, Paul; Obstfeld, Maurice; Melitz, Marc, International Economics: Theory & Policy, 9th edition, 2012 at 355.

that is *generally accepted* in payment for goods or services or in the repayment of debts (emphasis added).”¹⁶

12. Interestingly, Professors Osler and Ferrell fail to discuss this particularly important requirement of *regular* or *general* use for an asset to be a “currency” as defined by economists, including Professor Mankiw whom they cite. Additionally, it is important to note that the definition and understanding of a currency by Professor Mankiw dictates that all three functions “*together*” distinguish money from other assets in the economy (emphasis added).^{17,18}

13. Currency functions as a medium of exchange by enabling the exchange of goods and services for consideration between buyers and sellers.¹⁹ One can use U.S. Dollars to purchase common goods like a coffee or services like a haircut. However, if one were to own a share of Apple or GameStop, one would not be able to easily purchase these same goods and services without first exchanging Apple or GameStop stock for U.S. Dollars, or another currency if one were in another country, because stores would *generally* not accept stock as a form of payment. Thus, included in Professor Mankiw’s specification of currency as a medium of exchange is that it is “commonly accepted” since buyers and sellers need to be confident that a given currency can be used to make purchases at other venues.²⁰ As such, even though it might be technically feasible to use Apple stock as a medium of exchange, e.g., to make an in-kind donation to a nonprofit, Apple stock is not currency because it is not commonly accepted by other vendors in the economy.

¹⁶ Mishkin, Frederic S. and Serletis, Apostolos. The Economics of Money, Banking and Financial Markets (4th Canadian ed.). Toronto: Pearson Addison Wesley, 2011 at 43.

¹⁷ Mankiw, N., Principles of Economics, 8th edition, 2016 at 605.

¹⁸ Professors Krugman et al. also states that money serves as a medium of exchange, unit of account, and store of value but that “the most important function of money is to serve as the medium of exchange” and the “second important role is as a unit of account.” In discussing the third role as store of value, Krugman notes that “this attribute is essential for any medium of exchange.” Krugman, Paul; Obstfeld, Maurice; Melitz, Marc, International Economics: Theory & Policy, 9th edition, 2012 at 355.

¹⁹ *ibid.*

²⁰ *ibid.*

In addition, Mankiw specifies that in order for an asset to be used as a medium of exchange, it needs to be transferred from a buyer to a seller: “A medium of exchange is an item that buyers give to sellers when they purchase goods and services... [T]his transfer of money [or currency] from buyer to seller allows the transaction to take place.”²¹

14. Currency also functions as a unit of account to measure the value of goods and services as well as the financial performance of companies or the wealth of a household.²² As a practical matter, a currency’s usefulness as a commonly accepted medium of exchange automatically makes it a *regularly* used unit of account since buyers and sellers must be able to quickly and easily quote the value for goods and services one could purchase with such currency. A unit of account needs to be *regularly* used in order to fulfill the function of a currency. For example, while it is possible to measure the value of a cup of coffee as 0.03 shares of Apple, a plane ticket as 2 shares of Apple, or a house as 2,000 shares of Apple, it is unhelpful to do so because Apple shares are not *regularly* used as a unit of account. On the other hand, a \$4.50 cup of coffee, a \$300 plane ticket and a \$300,000 house can be easily valued because U.S. Dollars, as currency, are a common unit of account.

15. Finally, currency functions as a store of value that can be held for use at a later time.²³ A stable currency like the U.S. Dollar allows for predictable purchasing power that typically does not drastically change over short periods of time. With the example of Apple or GameStop stock that we have used, a vendor might not want to accept GameStop shares for payment because its value could radically change with company news. For example, if a coffee shop has received payment in shares of GameStop and the price of GameStop suddenly declines,

²¹ *ibid.*

²² *ibid.*

²³ *ibid.*

the coffee shop might not have enough funds to pay its employees. Thus, the coffee shop would not use GameStop shares as a store of value because of the associated price volatility. Rather, the coffee shop accepts U.S. Dollars because it can store U.S. Dollars from coffee purchases and use them in the future to pay its employees and suppliers without having to worry about significant short-term price declines.

16. Fiat currency derives value from the backing by the issuer of the fiat note. Fiat currencies are typically backed by the full faith and credit of the government that issues them. Traditional fiat currencies like the U.S. Dollar are typically classified as legal tender and are required by *law* to be accepted as a medium of exchange to settle public or private debt in its country of issuance. At times, certain fiat currencies have historically been incredibly volatile and became a poor store of value or unit account. In these cases of extreme currency volatility such as recently happened in Venezuela, citizens resort to using stable foreign currencies such as the U.S. dollar. The local currency might continue to serve as an official medium of exchange and be used in the country only because it is decreed by the government.

17. Certain digital assets are sometimes called “virtual currencies” or “cryptocurrencies” but whether an asset actually functions as a currency is determined by the test set forth above. With respect to XRP, Ripple’s own CEO, Brad Garlinghouse, has publicly denied that XRP is a currency or functions as a currency because it is not *regularly* used as a medium of exchange. At a Yahoo Finance summit on digital assets on February 7, 2018,²⁴ Garlinghouse stated: “I’m even careful, and I would even encourage journalists of the world to be careful, that I don’t call this cryptocurrency. ***It’s not currency.*** I can’t go to Starbucks or Amazon and use [it]. And you know somebody inevitably [will say], ‘I have one example where I bought something

²⁴ Yahoo Finance All Markets Summit: Crypto, February 7, 2018. <https://www.yahoo.com/news/yahoo-finance-markets-summit-crypto-february-7-2018-223531903.html>.

with a Bitcoin.’ Then, I usually say, ‘Well, did you do a second transaction?’ Like, it’s not actually a currency. These are digital assets (emphasis added).”²⁵

18. Additionally, economists have performed assessments using the same currency framework as Professor Mankiw and found that Bitcoin functions more like a speculative investment than a currency or commonly accepted medium of exchange due to its highly volatile nature.^{26,27} Bitcoin is the largest and most widely traded digital asset with a current total value of \$1.21 trillion.²⁸ At a relatively much smaller total value of \$55.8 billion—or 4.6 percent of outstanding Bitcoin²⁹—it would be farfetched to argue that XRP currently functions as a regularly used medium of exchange when Bitcoin does not function in that way yet, despite wider market recognition and adoption. Furthermore, XRP price is on average twice as volatile as Bitcoin and would serve as an even more unstable store of value.³⁰ I conclude in the following sections that XRP does not function as a currency because it does not perform the three primary functions of a currency.

D. XRP IS NOT A MEDIUM OF EXCHANGE AS DEFINED FOR CURRENCIES

19. As explained in the previous Section II.C, an asset functions as a medium of exchange if it is commonly accepted by sellers in exchange for goods and services. XRP is not commonly accepted as a medium of exchange. Even if it is possible for a vendor to receive XRP

²⁵ YouTube. (2019). BRAD GARLINGHOUSE RIPPLE CEO YAHOO FINANCE INTERVIEW 30 MINUTES, starting at 15:09. Accessed at: <https://youtu.be/pzbJ6e8sdpg?t=909>.

²⁶ Baur, Dirk and Dimpfl, Thomas. (2021). The volatility of Bitcoin and its role as a medium of exchange and a store of value. *Empirical Economics*, vol. 61, issue 5, pp. 2663-2683.

²⁷ Baur, D., Hong, K., and Lee, A. (2017). Bitcoin: Medium of Exchange or Speculative Assets?. *Journal of International Financial Markets, Institutions and Money* 54.

²⁸ CoinMarketCap. Bitcoin Price Data. <https://coinmarketcap.com/currencies/bitcoin/>. Accessed on November 12, 2021.

²⁹ CoinMarketCap. XRP Price Data. <https://coinmarketcap.com/currencies/xrp/>. Accessed on November 12, 2021.

³⁰ Leirvik, Thomas. (2021). Cryptocurrency returns and the volatility of liquidity. *Finance Research Letters*, at Table 1.

as payment for a good or service, a vendor cannot in turn easily use that XRP to buy the typical set of goods and services required to operate her business because XRP is not commonly accepted by most vendors today. To analyze the extent to which XRP is commonly accepted as a medium of exchange, this report reviewed the largest 100 retailers in the U.S., as ranked by 2020 retail sales volume, and documented whether any of these retailers' online platforms accept XRP as a medium of exchange.³¹ This list of retailers includes stores that sell a wide range of everyday goods such as Amazon, Walmart, Best Buy and Home Depot. These 100 retailers represent 60 percent of total U.S retail sales in 2020,³² and their full list is included in Appendix D. By visiting the online platform of each top 100 retailer and reviewing the payment options accepted to complete a purchase at each retailer, it appears that none of the top 100 retailers directly accept XRP as a form of payment for goods and services.³³

20. Another demonstration that XRP is not commonly accepted as a medium of exchange is that it is not accepted by major credit card processors. Visa, Mastercard, UnionPay, American Express, JCB, and Discover collectively processed 99% of the total worldwide credit card purchase transactions in 2017.³⁴ These credit card processors enable the transmittance and settlement of payment from a buyer to a seller of goods and services. However, as of December

³¹ National Retail Federation. Top 100 Retailers 2021 List. <https://nrf.com/resources/top-retailers/top-100-retailers/top-100-retailers-2021-list>; Although the acceptance of XRP as payment was analysed for retailers at the time of writing of this rebuttal report, there is no reason to believe that circumstances were different between 2013 to 2020 and nothing in Osler's or Ferrell's report suggests otherwise.

³² National Retail Federation. State of Retail. <https://nrf.com/topics/economy/state-retail>; The 60 percent figure is calculated by totalling U.S. sales of the 100 retailers (\$2.43 trillion) in Appendix D and dividing by all 2020 U.S. retail sales (\$4.07 trillion), found in the NRF's State of Retail annual sales growth chart: <https://infogram.com/1pl9yq9p7rvglmfqpv1ryxgljmsz575wwm1>.

³³ Certain payment processors such as BitPay allow the purchase of store gift cards that can later be used at certain retailers in the top 100 list. However, this is not considered a medium of exchange and is further discussed in Section III.GI.A.v.

³⁴ Statista. Distribution of credit card issuers worldwide in 2017, by purchase transactions. <https://www.statista.com/statistics/278970/share-of-purchase-transactions-on-global-credit-cards/>.

22, 2020, none of these credit card processors accepted XRP as a sending or settlement currency.³⁵

Thus, XRP is not commonly accepted as a medium of exchange nor regularly used as a means of payment.

E. XRP IS NOT A STORE OF VALUE AS DEFINED FOR CURRENCIES

21. As discussed in Section II.C, an asset cannot be subject to high volatility and still function as a store of value as defined for currencies. For a currency like the U.S. dollar to function as a store of value, its users must be able to have the reasonable belief that a payment received in such a currency will not gain or lose significant purchasing power over a short period of time.³⁶ An asset used as a store of value that has large price swings could result in economic instability or large loss of wealth for the holder of that asset. Thus, sellers of goods and services are unlikely to accept a currency for payment if its value were known to spike or evaporate immediately.³⁷ Volatile currencies like the Venezuelan Bolivar have lost significant value in recent years.³⁸ While the Bolivar continues to be accepted as a currency in Venezuela as required by law, price volatility has led Venezuelans to adopt more stable currencies like the Euro and U.S. Dollar to purchase basic goods and services.³⁹ In fact, Venezuela legalized U.S. Dollar-based transactions in 2020.⁴⁰

³⁵ As of November 4, 2021, none of the payment processors' websites return a search result that mentions the use of XRP on their processing platforms as a medium of exchange between buyers and vendors:

<https://www.google.com/search?q=site%3Avisa.com+xrp>,
<https://www.google.com/search?q=site%3Amastercard.com+xrp>,
<https://www.google.com/search?q=site%3Aamericanexpress.com+xrp>,
<https://www.google.com/search?q=site%3Adiscover.com+xrp>,
<https://www.google.com/search?q=site%3Aunionpayintl.com+xrp>,
<https://www.google.com/search?q=site%3Ajcb.com+xrp>.

³⁶ Saving, Thomas. Can Cryptocurrencies Successfully Compete in the Money Market?, PERC Policy Study 2102.

³⁷ Krugman, Paul; Obstfeld, Maurice; Melitz, Marc, International Economics: Theory & Policy, 9th edition, 2012 at 356.

³⁸ Xe. Venezuelan Bolívar to US Dollar Exchange Rate Chart.

<https://www.xe.com/currencycharts/?from=VEF&to=USD&view=10Y>.

³⁹ Reuters. In Venezuela's major cities, over 50% of goods are sold in hard currency.

<https://www.reuters.com/article/us-venezuela-economy/in-venezuelas-major-cities-over-50-of-goods-are-sold-in-hard-currency-idUSKCN20K38Q>.

⁴⁰ Saving, Thomas. Can Cryptocurrencies Successfully Compete in the Money Market?, PERC Policy Study 2102.

Hence, high price volatility makes it impractical for a currency to be accepted as a medium of exchange and held as a store of value.

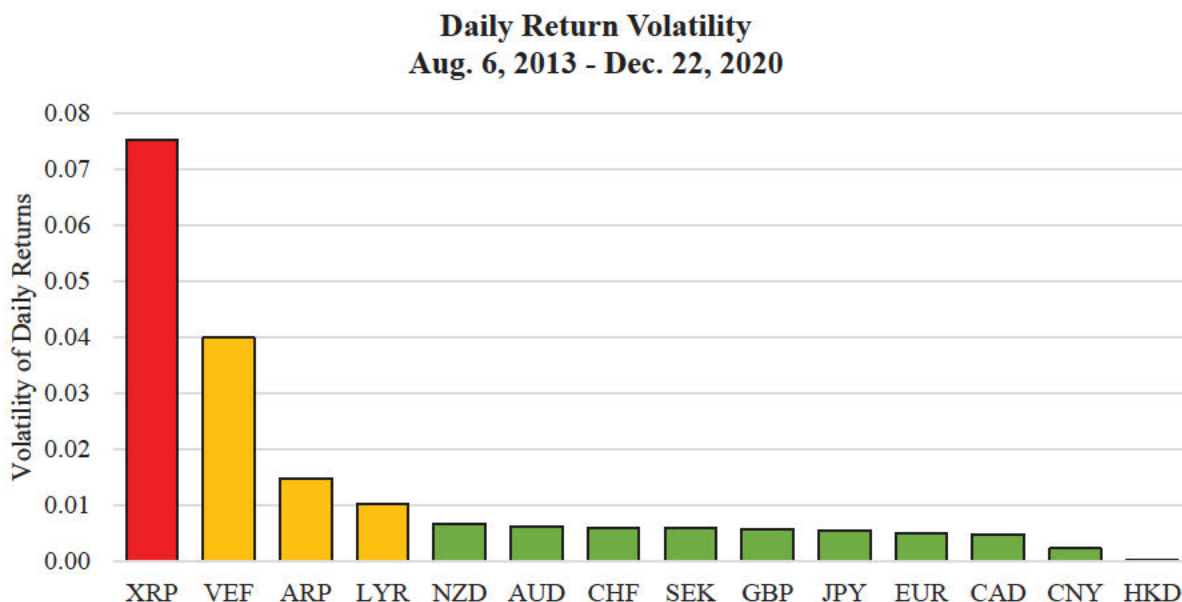
22. To evaluate the extent, if any, to which XRP reasonably functions as a store of value relative to major currencies, this report calculates the daily standard deviation of price returns to quantify the daily volatility of XRP returns compared to the top 10 most traded currencies after the U.S. Dollar, according to the Bank of International Settlements.⁴¹ Comparison of exchange rates are expressed relative to the U.S. Dollar and thus it is not included in the analysis as a separate currency. In addition, historically volatile currencies including the Venezuelan Bolivar, the Argentinean Peso, and the Turkish Lira are included as comparison.⁴² As shown in Figure 1, between August 6, 2013 and December 22, 2020, XRP has had a daily standard deviation, or volatility, of 7.5 percent. This means that on average, XRP moved 7.5 percent upward or downward per day during the observed time period. Compared to the top 10 currencies (as shown in green bars in Figure 1), XRP is at least 11 to 33 times as volatile. XRP has nearly twice the daily volatility expected from even the volatile Venezuelan Bolivar. The Venezuelan Bolivar is able to continue as a currency because the government can require the currency to be official legal tender, but there is no government that currently requires for XRP to be used as legal tender.

⁴¹ BIS. Foreign exchange turnover in April 2019. https://www.bis.org/statistics/rpfx19_fx.pdf.

⁴² These examples had high periods of instability during the time period examined for XRP and were identified as unstable currencies in the following article: <https://news.bitcoin.com/a-short-history-of-major-fiat-currency-collapses-and-what-triggered-them/>.

Figure 1. Volatility of XRP vs. Fiat Currencies

This graph plots the daily volatility of XRP returns and major fiat currencies. Green bars represent the top 10 most traded currencies, including the New Zealand Dollar (NZD), Australian Dollar (AUD), Swiss Franc (CHF), Swedish Krona (SEK), Pound Sterling (GBP), Japanese Yen (JPY), Euro (EUR), Canadian Dollar (CAD), Chinese Yuan (CNY), and Hong Kong Dollar (HKD). Yellow bars represent examples of volatile fiat currencies including the Venezuelan Bolivar (VEF), Argentinean Peso (ARP), and Turkish Lira (LYR).



23. Additionally, it is important to note that being a good store of value is a necessary but insufficient condition to be a currency. Apple stock is far less volatile than GameStop and also much less volatile than the Venezuelan Bolivar, but that does not make Apple stock a currency without also being a regularly used medium of exchange and unit of account. Professor Mankiw highlights that there are other stores of value, including “*nonmonetary* assets such as stocks and bonds (emphasis added).”⁴³ Nevertheless, the high volatility of XRP makes it an extremely poor store of value today and hence not currently a good candidate as a currency.

F. XRP IS NOT A UNIT OF ACCOUNT AS DEFINED FOR CURRENCIES

24. As described in Section II.C, an asset must be regularly used as a unit of account in order to function as currency that provides a useful measure of value. For example, when one

⁴³ Mankiw, N., Principles of Economics, 8th edition, 2016 at 604-605.

visits a restaurant, the prices are quoted in U.S. Dollars, e.g., \$3 for a cup of coffee and \$9 for a sandwich, as opposed to other assets, e.g., 0.014 shares of GameStop for a cup of coffee or 0.041 shares of GameStop for a sandwich. It is obviously feasible to quote prices at the restaurant using shares of GameStop as a unit of account but not at all practical because shares of GameStop are not *regularly* used as a unit of account. Similarly, XRP is not *regularly* used as a unit of account and thus does not function as a currency.

25. Ripple itself does not use XRP as a unit of account. Beginning in Q4 2016, Ripple began to publish quarterly reports that publicly detailed its sales of XRP and the monetary value gained from these sales. As shown in the example in Figure 2, Ripple's sales of XRP were quoted using U.S. Dollars as the unit of account. This form of accounting is unsurprising and in line with generally accepted accounting principles in which U.S. Dollars are much more commonly used as a unit of account. It would not be easy to interpret the monetary gain from Ripple's XRP sales if they were denominated in XRP, both because XRP is not commonly used as a unit of account (it would be difficult for a reader to understand the size of the gain that accrued to Ripple as a result of XRP sales) and also because of the price volatility of XRP (the size of the gain might be substantially different if measured on the date of publication versus the date of sale). However, were XRP a regularly used unit of account, Ripple might have reported its sales in XRP units. Instead, every quarterly report published by Ripple from Q4 2016 to December 22, 2020 did not report Ripple's XRP sales in XRP units, but rather in U.S. Dollars.⁴⁴

⁴⁴ Ripple Insights. Quarterly XRP. Market Reports, 2017-2020. <https://ripple.com/insights/Q4-2016-xrp-markets-report>, <https://ripple.com/insights/Q1-2017-xrp-markets-report>, <https://ripple.com/insights/Q2-2017-xrp-markets-report>, <https://ripple.com/insights/Q3-2017-xrp-markets-report>, <https://ripple.com/insights/Q4-2017-xrp-markets-report>, <https://ripple.com/insights/Q1-2018-xrp-markets-report>, <https://ripple.com/insights/Q2-2018-xrp-markets-report>, <https://ripple.com/insights/Q3-2018-xrp-markets-report>, <https://ripple.com/insights/Q4-2018-xrp-markets-report>, <https://ripple.com/insights/Q1-2019-xrp-markets-report>, <https://ripple.com/insights/Q2-2019-xrp-markets-report>, <https://ripple.com/insights/Q3-2019-xrp-markets-report>, <https://ripple.com/insights/Q4-2019-xrp-markets-report>, <https://ripple.com/insights/Q1-2020-xrp-markets-report>, <https://ripple.com/insights/Q2-2020-xrp-markets-report>

Figure 2. XRP Sales Summary From Q3 2020 XRP Market Report

The table below reports the total XRP sales for Q2 2020 and Q3 2020 as shown in Ripple’s quarterly Q3 2020 Market Report.

Sales Summary (<i>dollars in millions</i>)	Q2 2020	Q3 2020
Total ODL-related sales*	32.55	81.39
Total purchases	0	45.55
Sales (<i>net of purchases</i>)	32.55	35.84

Global XRP volume	Q2 2020	Q3 2020
ADV XRP (<i>dollars in millions</i>)	196.28	403.58
Total XRP volume (<i>dollars in billions</i>)**	17.86	37.13
Net sales as % of total volume	0.18%	0.10%

26. XRP is not regularly used as a unit of account even among the businesses identified by defense counsel that purport to adopt XRP as a payment “use case.” Appendix C of the Adriaens Report provides a list of 660 purported “use cases for XRP or the XRP Ledger” which he identifies as being provided by defense counsel.⁴⁵ Of the 660 purported “use cases”, analysis is performed for all examples that pertain to e-commerce sites involving goods and services and can be accessed as of the date of this report. A list of these 163 examples can be found in Appendix E. Only one of these e-commerce sites, Travala, offers the ability to view prices in XRP units by manually toggling away from the defaulted U.S. Dollar-denominated prices. For example, PrestigeTime, an online e-commerce store listed in Appendix C of the Adriaens Report, specializes in the sale of luxury watches. Watches listed on this e-commerce storefront are quoted exclusively in U.S. dollars. Presumably, this set of businesses identified by Defendants as purportedly employing XRP

report, <https://ripple.com/insights/Q3-2020-xrp-markets-report>, <https://ripple.com/insights/Q4-2020-xrp-markets-report>.

⁴⁵ Expert Report of Peter Adriaens at 64.

“use cases” might be more receptive to using XRP as a unit of account, but U.S. dollars are overwhelmingly used as the unit of account. This is unsurprising, as use of XRP as a unit of account appears to be exceedingly rare. The Osler Report, for example, fails to cite a single example.

G. THE OSLER REPORT MISCHARACTERIZES XRP AS A CURRENCY

27. The Osler Report asserts that “XRP fits the economic definition of a ‘currency’ because it has the functions and attributes commonly assigned to currencies by experts.” Yet, the Osler Report cites limited (and in some cases zero) examples of how XRP fulfills each of the three functions of a currency. The Osler Report also confuses certain *potential* usage of XRP with how it is *actually* used as a digital asset. Moreover, certain attributes as claimed to be shared by XRP are simply not unique or sufficient to deem an asset to be a currency. I describe in the following sections how the Osler Report fails to establish that XRP fits the economic definition of a currency.

i. The Osler Report Fails to Establish that XRP is Regularly Used as a Medium of Exchange

28. As discussed in Section II.C, economic experts assert that a currency must be “commonly accepted” and “regularly use[d]” as a medium of exchange.⁴⁶ The Osler Report speaks to how XRP purportedly can function as a medium of exchange and a means of payment:

Means of payment: Every transaction on the XRP Ledger, including transactions through Ripple’s ODL⁴⁷ product, described in Section IV, costs a fraction of an XRP. That is, XRP is used to pay for the service of liquidity. In addition to that payment for use of the XRP Ledger itself, XRP can be used to pay for physical goods through online platforms including Bitcoin Superstore and Shopify and travel through Travala.⁴⁸

Medium of exchange: One function of XRP is to serve as a medium of exchange between two other currencies and currently serves that function for the client firms using Ripple’s ODL.⁴⁹

⁴⁶ Mankiw, N., Principles of Economics, 8th edition, 2016 at 604-605.

⁴⁷ ODL is an abbreviation for Ripple’s On-Demand Liquidity Product.

⁴⁸ Expert Report of Carol Osler at 5.

⁴⁹ *ibid.*

29. The Osler Report errs in at least five ways when characterizing XRP as a “medium of exchange.” First, “means of payment” is not part of the standard economic definition for a currency—“medium of exchange” is—and this distinction is important.⁵⁰ Professor Osler contradicts herself on whether a “means of payment” is a separate function by asserting “four major functions”⁵¹ while acknowledging that “[v]irtually any standard economics textbook will list the same three functions of money.”⁵² A “medium of exchange” refers to *what* can be exchanged for goods and services while a “means of payment” refers to *how* such payment can be delivered. Thus, U.S. Dollars and Euro are currencies (in relevant part because they are mediums of exchange), while checks and money orders are not (because they are only means of payments and not mediums of exchange). Similarly, as discussed in Section II.G.v., even if a purchase of a good or service is paid with XRP, if the seller receives the payment in fiat currency then XRP is not a medium of exchange and therefore is not a currency. For example, one can use airline miles to purchase various goods such as magazine subscriptions or Amazon gift cards. However, even though airline miles are used as a “means of payment,” they are not a “medium of exchange” because the seller of those goods receives fiat dollars and not airline miles. As such, even if XRP can be used to pay for goods and services to vendors who use Shopify, Professor Osler did not show that those vendors actually receive payment in XRP; Shopify enables XRP payments via processors such as BitPay which commonly settle digital asset payments in fiat currency, as discussed in more details in the later Section II.G.v. In the Shopify example, Professor Osler has not analyzed, let alone shown, that XRP is truly used as a medium of exchange between buyers and sellers.

⁵⁰ Yang, Bill. (2007). What is (Not) Money? Medium of Exchange ≠ Means of Payment. *The American Economist*, vol. 51, issue 2, pp. 101-104.

⁵¹ Expert Report of Carol Osler at 9.

⁵² Expert Report of Carol Osler at 5.

30. Second, the fee or “fraction of an XRP” used to “pay for the service of liquidity” for transfers on the XRP Ledger does not fit the definition of a medium of exchange. According to the standard understanding of this phrase, a buyer gives money in exchange for goods and services from the seller and in exchange for providing goods and services, the seller receives the money as consideration. While a sender of XRP does pay a transaction fee in XRP on the ledger, the XRP paid as transaction cost is permanently destroyed on the network.⁵³ The XRP fee is not paid as consideration to anyone in exchange for the service provided.

31. Third, Professor Osler states “XRP can be used to pay for physical goods through online platforms including Bitcoin Superstore.” However, XRP cannot currently be used at all on Bitcoin SuperStore since this platform no longer has an operating domain as of the date of this report.⁵⁴

32. Fourth, as further discussed in Section II.I, XRP is not a medium of exchange as used in Ripple’s ODL platform. Although Professor Osler makes extensive comparisons of XRP to “cowrie shells,” cowrie shells are not a common currency today even though they could possibly be traded in remote regions or among vacationers at the beach. The sender of fiat in the cross-border transaction pays MoneyGram a transaction fee to facilitate the transfer. This fee is paid in the sender’s local currency. Thus, the medium of exchange that the sender uses to pay to facilitate a transfer to a cross-border recipient is in fiat currency and not in XRP. Additionally, ODL depends on a liquid market for XRP in which Ripple expends significant efforts to incentivize and subsidize, as discussed in more details in the later Section 0 on XRP liquidity.

33. Fifth, the Osler Report did not analyze or demonstrate whether XRP actually is a commonly accepted and regularly used medium of exchange, which is an essential requirement

⁵³ XRP Ledger. Transaction Cost. <https://xrpl.org/transaction-cost.html#beneficiaries-of-the-transaction-cost>.

⁵⁴ The URL for Bitcoin SuperStore, <https://www.bitcoinsuperstore.us/>, was not accessible on November 12, 2021.

for economists to classify an asset as a currency as described in Section II.C. While it may be possible for XRP to be accepted as means of payment by lesser-known sites like Travalat, this is far from the threshold required for a currency to be “commonly accepted” and “regularly use[d]”⁵⁵ as specified in Professor Mankiw’s *Principles of Economics*, which Professor Osler cites. As discussed in Section II.D, XRP cannot be used as a medium of exchange at the largest retailers that are much more representative of the type of transactions in the everyday economy. Professor Osler simply ignores the important distinction that XRP is neither commonly accepted nor regularly used.

ii. The Osler Report Fails to Demonstrate that XRP is Used as a Unit of Account

34. Professor Osler asserts, with no justification or examples, that XRP is used as a unit of account:

*Unit of account: XRP is used to value other things available to exchange.*⁵⁶

35. XRP is very rarely used as a unit of account. Even on online platforms that purportedly accept XRP as payment, almost all prices are quoted in more widely used fiat units such as the U.S. Dollar. XRP is not used to measure economic value or wealth, even by Ripple itself, as shown in Section II.F.

iii. The Osler Report Fails to Establish that XRP is a Stable Store of Value

36. Lastly, Professor Osler asserts that despite its volatile nature, XRP could still be considered a store of value. She cites the volatile nature of fiat legal tender as a comparison:

A wide range of prices between a currency, on the one hand, and goods and services, on the other, is also irrelevant to the nature of that currency. At the time of writing there is substantial uncertainty about US inflation, or equivalently there is concern about the US dollar’s future value in terms of goods and services. No one questions, however, whether

⁵⁵ Mankiw, N., *Principles of Economics*, 8th edition, 2016 at 604-605.

⁵⁶ Expert Report of Carol Osler at 5.

*the US dollar is a currency. Likewise, the rate at which Venezuelan bolivar loses value in terms of goods and services has been extremely difficult to predict in recent years. In 2018, for example, that currency lost 88% of its value in February, 1% in September, and 85% in December. This has no influence on whether the bolivar is a currency.*⁵⁷

37. Professor Osler fails to acknowledge that while the Venezuelan Bolivar is indeed highly volatile, its continued status as a currency is due to its designation as legal tender in Venezuela. As legal tender, the citizens and businesses of Venezuela are required by law to accept the Bolivar to satisfy debts and financial obligations. Nevertheless, even as legal tender, the highly volatile nature of the Bolivar gave way to a black market where more goods and services are bought using more stable foreign currencies than the local currency,⁵⁸ as discussed in Section II.E. Unlike the Bolivar, XRP is neither legal tender nor state-sponsored. Since XRP is not legal tender, there is no legal requirement for sellers of goods and services to regularly accept XRP as payment. Coupled with its highly volatile price as shown in Figure 1, XRP is an unreliable store of value and unsuitable to be used as a currency particularly in circumstances where there is no law mandating that it be accepted as a medium of exchange.

iv. Other Attributes Cited by the Osler Report are not Unique to Currencies

38. In addition to the three primary functions of a currency, Professor Osler also asserts that XRP, like cowrie shells, possesses all seven valuable attributes of a currency as defined by the Federal Reserve and economists.⁵⁹

Durability: Units of XRP do not rot, hold no appeal to animals, and do not tarnish. Portability: Units of XRP are effectively portable insofar as they can be accessed anywhere one finds an internet connection. Divisibility: Units of XRP are divisible because, like Bitcoin, they can be traded in decimal fractions. Uniformity: Unlike a shell, a bead, or a silver coin that must be stamped by a craftsman and will naturally vary slightly, units of XRP are identical by construction. Each XRP comprises precisely 1

⁵⁷ Expert Report of Carol Osler at 6.

⁵⁸ Reuters. In Venezuela's major cities, over 50% of goods are sold in hard currency.

<https://www.reuters.com/article/us-venezuela-economy/in-venezuelas-major-cities-over-50-of-goods-are-sold-in-hard-currency-idUSKCN20K38Q>.

⁵⁹ Expert Report of Carol Osler at 6.

*million drops, the smallest sub-unit. Acceptability: **XRP** can be traded on myriad exchanges around the world. Low storage costs: **XRP** is stored in “wallets,” which effectively “cost” 10 XRP (to satisfy a reserve requirement) for on-Ledger electronic repositories and can be stored in hardware wallets that cost roughly the same range as a medium-quality physical wallet: \$50 to \$200.²⁴ Wallet security is high because transaction ledgers are maintained on many independent servers around the world and updated frequently. This means that the underlying record of XRP ownership is robust to physical or electronic disasters. Limited supply: The long-term supply of **XRP** is limited to the 100 billion already in existence. No additional units of XRP can be created without changing the XRP Ledger itself (emphasis added).⁶⁰*

39. However, these attributes are not unique or sufficient to define a currency from a standard economic perspective. These attributes are shared by many other assets such as stocks and bonds in the same manner as the Osler Report describes. For example, Apple shares are divisible since brokerage houses offer customers the ability to buy and sell fractional shares of stock.⁶¹ Apple shares are also uniform as each common share represents the same ownership interest in the company and are interchangeable when buying or selling on an exchange. In fact, as an illustrative point, if “shares of Apple” were to be substituted with minimal stylistic changes into the same paragraph laid out by Professor Osler to describe “units of XRP”, all of these attributes would ring true for Apple shares.

*Durability: **Shares of Apple** do not rot, hold no appeal to animals, and do not tarnish. Portability: **Shares of Apple** are effectively portable insofar as they can be accessed anywhere one finds an internet connection. Divisibility: **Shares of Apple** are divisible because they can be traded in fractional shares. Uniformity: Unlike a shell, a bead, or a silver coin that must be stamped by a craftsman and will naturally vary slightly, **shares of Apple** are identical by construction. Acceptability: **Shares of Apple** can be traded on myriad exchanges around the world. Low storage costs: **Shares of Apple** can be held in online brokerages with zero or minimal maintenance cost. Limited supply: The supply of **Apple shares** is limited.*

40. Thus, shares of Apple, GameStop, or any other publicly traded stock for that matter can fulfill the attribute requirements in *exactly* the same way that Professor Osler demonstrates for

⁶⁰ Expert Report of Carol Osler at 8.

⁶¹ Charles Schwab. Fractional Shares. <https://www.schwab.com/fractional-shares-stock-slices>.

XRP. However, shares of stocks are certainly not currencies but rather securities. This highlights the fallacy in Professor Osler's argument. Whether or not an asset meets Professor Osler's arbitrary attributes, these attributes are not sufficient to classify them as a currency from a standard economic perspective. Instead, a currency must be a regularly and widely accepted a) medium of exchange, b) unit of account, and c) store of value. XRP again fails to meet any of these conditions as shown above.

v. *XRP is not a Medium of Exchange, Even if Certain Payments Can be Made Using XRP via Payment Processors*

41. Digital asset payment processors, such as BitPay, enable customers to purchase goods and services using digital assets at various vendors. For example, as mentioned in the Osler Report, a clothing vender can use Shopify's e-Commerce solution and integrate with BitPay in order to enable customers to pay for its clothing using digital assets such as XRP. In a similar manner to how one can redeem airline miles for flights, the existence of such payment processing solutions allows XRP to be used as a means of payment but it does not make XRP function as a medium of exchange. In order for XRP to be a medium of exchange, the buyer needs to spend XRP *and* the seller needs to receive payment in XRP.⁶² If the seller receives payment in a fiat currency such as U.S. Dollars, XRP is not actually exchanged in the sale.

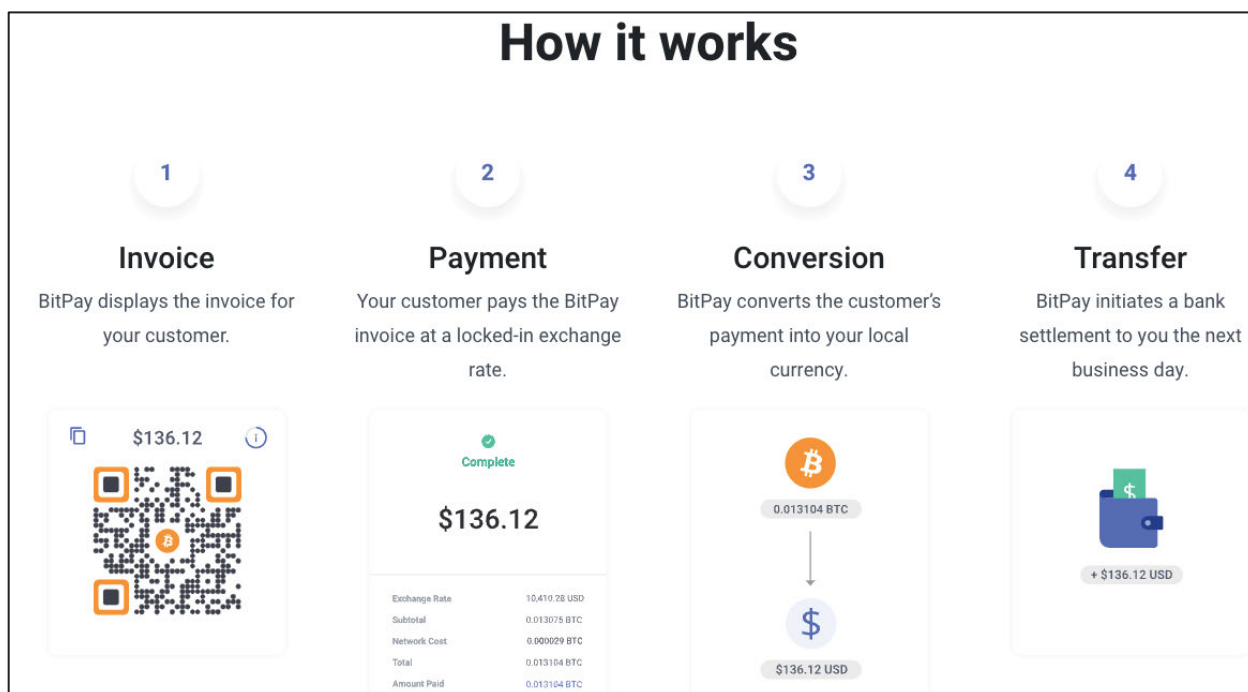
42. At digital payment processors such as BitPay, vendors who receive digital assets as payment are advised to settle in fiat local currency rather than XRP as shown in Figure 3. This makes sense because: (i) XRP is not commonly accepted as a medium of exchange and thus cannot be used by vendors to subsequently buy other goods and services, and (ii) XRP has significant

⁶² Mankiw, N., Principles of Economics, 8th edition, 2016 at 604-605.

price volatility which makes it undesirable for vendors to use XRP as a store of value to make future purchases.

43. BitPay, in recognition of the undesirability for vendors to settle payments in digital assets, promotes the ability for sellers to “Receive funds directly to your bank account with **zero price or volatility risk** (emphasis added).”⁶³ As shown in Figure 3, BitPay’s promoted payment process involves customers paying in a digital asset at a “locked-in exchange rate” (step “2”) followed by vendors receiving funds in their local fiat currency (step “3”). The graphic in Figure 3 indicates that the normal process for vendors using BitPay is to convert digital assets used for payment into fiat currency. Under such a scenario, the digital asset does not function as a medium of exchange since the seller does not actually receive the paid digital asset, e.g., XRP, in exchange for the good or service sold.

Figure 3. Payment Process Promoted by BitPay⁶⁴



⁶³ BitPay. Business. <https://bitpay.com/business/>.

⁶⁴ BitPay. Online Payments. <https://bitpay.com/online-payments/>.

H. THE FERRELL REPORT MISCHARACTERIZES XRP AS HAVING THE SAME FUNCTIONS AS MONEY

44. Similar to the Osler Report, the Ferrell Report argues that “XRP has the same function as money albeit as a virtual currency.”⁶⁵ However, the Ferrell Report similarly fails to demonstrate that XRP exhibits the functions necessary to be classified as a currency. Notably, on several occasions, the Ferrell Report provides examples where XRP “can be” used as one of the functions of a currency. However, “can be” is not the threshold for classification as a currency. Rather, in order for an asset to be classified as a currency, it needs to be *commonly accepted* and *regularly used* as a means of exchange and a unit of account respectively, in addition to having low volatility as a store of value as discussed in Section II.C.

i. *The Ferrell Report Does Not Show that XRP is Commonly Used as a Medium of Exchange*

45. The Ferrell Report provides one use case where XRP “can be” used as a medium of exchange:

*XRP can be used as a medium of exchange in peer-to-peer exchange, for example, between wallets on the blockchain, and can also be exchanged for fiat currency (USD, Euro, Japanese Yen, etc.) or other cryptocurrencies at the cryptocurrency exchanges.*⁶⁶

46. While XRP “can be” used as a medium of exchange in a “peer-to-peer exchange”, the Ferrell Report does not provide any proof that this type of exchange actually happens nor any characterization of the nature of this “peer-to-peer exchange”. For example, this peer-to-peer exchange could involve an over-the-counter trade of XRP as an investment. Furthermore, even if the Ferrell Report envisions such a “peer-to-peer exchange” to involve use of XRP to pay for a good or service, the mere fact that XRP “can be” used in such a transaction is insufficient to

⁶⁵ Expert Report of Allen Ferrell, Ph.D. at 71.

⁶⁶ Expert Report of Allen Ferrell, Ph.D. at 73.

establish XRP as a currency. Currencies need to be regularly used and commonly accepted as a medium for exchange by both buyers and sellers in a market economy, as discussed in Section II.C.

ii. The Ferrell Report Does Not Show that XRP is Commonly Used as a Unit of Account

47. The Ferrell Report cites specific examples of how XRP can be used as a unit of account:

*XRP can be used as a common base to express the price of a unit of XRP on the XRP Ledger but also to express prices at cryptocurrency exchanges.*⁶⁷

48. While the Ferrell Report posits that XRP “can be” used as a common base to express prices, it makes no attempt at analyzing whether XRP *is regularly* used to do so as discussed in Section II.C. Indeed, XRP units are almost never used to quote prices of goods and services. Digital asset prices on the largest digital asset platforms like Binance, Coinbase, and FTX are not regularly expressed in XRP units but rather in fiat currencies such as the U.S. dollar, Euro, or digital stablecoins.⁶⁸ While certainly anything potentially can be used as a common base to express prices, the reality is that XRP units are not used regularly to do so.

iii. The Ferrell Report Does Not Show that XRP is Used as a Store of Value

49. The Ferrell Report claims that former SEC Chair Jay Clayton explained how digital assets can be a store of value:

*In a 2017 speech, then-Chairman of the SEC Jay Clayton explained that cryptocurrencies also serve as a store of value.*⁶⁹

⁶⁷ Expert Report of Allen Ferrell, Ph.D. at 72.

⁶⁸ FTX US. Markets. <https://ftx.us/markets>; Coinbase. All Asset Prices. <https://www.coinbase.com/price>; Binance. Home Page. <https://www.binance.com/en>.

⁶⁹ *ibid.*

50. However, in the subsequent quotation provided in the Ferrell Report, Jay Clayton does not mention that digital assets function as a store of value:

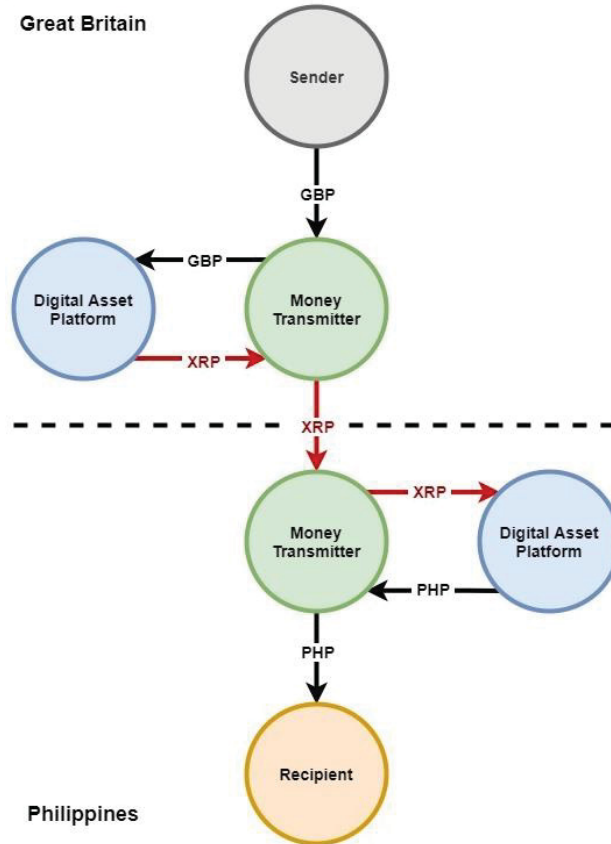
*Cryptocurrencies: Speaking broadly, cryptocurrencies purport to be items of inherent value (similar, for instance, to cash or gold) that are designed to enable purchases, sales, and other financial transactions.*⁷⁰

51. Instead, Clayton only mentions that digital assets “*purport* to be items of inherent value (emphasis added).” As discussed in Section II.C, shares of Apple have inherent value derived from ownership of expected company cashflows, but are not classified as a currency because they are not commonly used as a medium of exchange or unit of account and are a relatively less stable store of value compared to currencies like the U.S. Dollar. Similarly, XRP purports to have value, but cannot be classified as a currency because it is not a widely accepted medium of exchange or unit of account, and XRP’s price volatility precludes it from being a stable store of value.

I. XRP IS NOT USED AS A MEDIUM OF EXCHANGE FOR RIPPLE’S ON-DEMAND LIQUIDITY PRODUCT

52. Both the Osler and Ferrell Report characterizes XRP as a medium of exchange because XRP is used in Ripple’s ODL. ODL uses XRP as a bridge asset to make cross-border payments using the XRP blockchain. Figure 4 provides an illustration of an example cross-border payment using ODL.

⁷⁰ *ibid.*

Figure 4. Illustration of a Transaction on Ripple's On-Demand-Liquidity Platform.

53. The transaction starts in Great Britain where a sender wishes to send a remittance payment to the Philippines. To do so, she uses the services of Azimo, one of the money transmitters that uses Ripple's ODL platform to facilitate cross-border payments. The following steps are taken to send British Pounds (GBP) to the Philippines where it will be received as Philippine Pesos (PHP): (i) the sender sends GBP to the Azimo, (ii) Azimo takes the GBP and trades it for XRP at a European digital asset platform, (iii) Azimo sends the XRP from its account at the European digital asset platform to its account at a Filipino digital asset platform, (iv) at the Filipino digital asset platform, Azimo converts the XRP into PHP, and (v) Azimo pays PHP to the intended recipient.

54. None of the steps in the ODL transaction process described above involve the use of XRP as a medium of exchange. Steps (i) and (v) involve fiat currency. Steps (ii) and (iv) involve a trade between fiat currencies (GBP and PHP) and a digital asset (XRP), but XRP is not actually used as a medium of exchange; it is simply received by Azimo in exchange for GBP and there is no exchange for the purchase of goods or services. In Step (iii) using the XRP ledger, XRP is sent from Azimo's account at the European digital asset platform to its account at the Filipino digital asset platform, and again there is no exchange between a buyer or a seller since there is no change in ownership of the XRP. In addition, the fee paid by the sender to the money transmitter also does not use XRP as a medium of exchange. Money transmittal fees are typically paid in the sending currency, e.g., GBP, but could be deducted from the final payment, e.g., PHP, and certainly would not be paid in XRP. In these transactions, neither the sender nor the receiver ever interface with XRP and thus do not use XRP as a medium of exchange to pay for such a service fee.

III. REBUTTAL OF PROFESSOR FERRELL'S OPINIONS ON RIPPLE'S IMPACT ON XRP PRICE AND LIQUIDITY

A. ASSIGNMENT

55. The SEC has asked me to examine opinions in the Ferrell Report pertaining to the Ferrell Report's dual assertions that (i) "none of [XRP's] returns is owing to the efforts of Ripple"⁷¹ because "Ripple's XRP Distributions Did Not Increase XRP Price Return"⁷² and (ii) "Ripple's efforts over time were concerned with improving market liquidity."⁷³

B. SUMMARY OF OPINIONS

56. Based upon (i) my understanding of the academic literature on liquidity and asset prices, (ii) the Ferrell Report's regression analyses, and (iii) my academic research and expertise in finance, I conclude that the Ferrell Report's conclusion that "none of [XRP's] returns is owing to the efforts of Ripple" is inconsistent with the Ferrell Report's detailing of the steps taken by Ripple to make a liquid market for XRP. The facts I have reviewed reflect the following, among others:

- a. A large body of academic literature finds that increasing liquidity is generally associated with increasing asset price. All else equal, an asset is more valuable when it is more liquid. Stated another way, an investor will pay a higher price for an asset to the extent that the opportunity to sell the asset becomes easier and less costly. In fact, Professor Ferrell, in an earlier expert report for an unrelated matter, conceded that "a more liquid asset will be more valuable than a less liquid asset."⁷⁴

⁷¹ Expert Report of Allen Ferrell, Ph.D. at 55.

⁷² Expert Report of Allen Ferrell, Ph.D. at 51.

⁷³ Expert Report of Allen Ferrell, Ph.D. at 58.

⁷⁴ Report of Allen Ferrell in *James A. Bacon et al. v. Stiefel Laboratories, Inc.*, (No. 09-21 871-KING).

- b. Professor Ferrell asserts that “none of [XRP’s] returns is owing to the efforts of Ripple.” Yet, the Ferrell Report also carefully details the extensive efforts undertaken by Ripple to make a liquid market for XRP. As the academic literature discussed above makes clear, Ripple’s efforts to increase the liquidity of XRP are consistent with increasing XRP price. Indeed, in both public and private communications to their potential investors, Ripple and its employees indicate that they are aware of the positive relationship between liquidity and XRP value. Ripple’s efforts increased liquidity, as Professor Ferrell acknowledged; and increasing liquidity is generally associated with higher prices. Professor Ferrell’s conclusion that “none of [XRP’s] returns is owing to the efforts of Ripple” is directly contradictory to: a) his extensive acknowledgment of Ripple’s efforts to increase liquidity, and b) his acknowledgement that “a more liquid asset will be more valuable than a less liquid asset.”⁷⁵
- c. The empirical regression models that Professor Ferrell estimated to support his assertions that XRP distributions had no impact on XRP prices are both severely flawed conceptually and improperly implemented. Professor Ferrell is purportedly “[f]ollowing the [REDACTED] framework,”⁷⁶ and “implement[s] the [REDACTED] specification”⁷⁷ but errs in implementation. No reliable inferences can be drawn from his analysis.

⁷⁵ Report of Allen Ferrell in *James A. Bacon et al. v. Stiefel Laboratories, Inc.*, (No. 09-21 871-KING).

⁷⁶ Expert Report of Allen Ferrell, Ph.D. at 54 and 55.

⁷⁷ *ibid.*

C. RIPPLE’S EFFORTS TO INCREASE XRP LIQUIDITY ARE CONSISTENT WITH INCREASING XRP PRICE

57. The Ferrell Report asserts that “the SEC fails to consider possible alternative explanations for the economic reality that Ripple’s efforts do not impact XRP prices” and that “XRP’s long-run price returns are owing to non-XRP cryptocurrency market factors; none of those returns is owing to the efforts of Ripple.”⁷⁸ Yet immediately following, Professor Ferrell devoted nearly ten full pages of his report to explain the extensive efforts that Ripple undertook to “facilitate the growth of XRP market liquidity.”⁷⁹ These efforts include contracting with market intermediaries and listing XRP on various digital asset platforms. According to Professor Ferrell, increasing liquidity for XRP through the help of market intermediaries and cross-listings on digital asset platforms would lead to lower transaction costs and make XRP more widely available as a global settlement solution.⁸⁰

58. However, he fails to also acknowledge that the academic literature, internal Ripple communications, and his own prior report in a separate matter clearly support a connection between increasing liquidity and higher XRP prices. Thus, efforts by Ripple to make a liquid market for XRP, as spelled out in the Ferrell Report, are consistent with Ripple exerting effort to increase XRP prices. Notwithstanding the well-established relationship between liquidity and price (as further explained below), Professor Ferrell does not explain or attempt to account for the tension between his opinion that Ripple’s extensive actions had no impact on XRP’s price and his detailed recitation of Ripple’s efforts to increase XRP’s liquidity—efforts that he previously acknowledged have a positive impact on asset price, all else equal.

⁷⁸ Expert Report of Allen Ferrell, Ph.D. at 55.

⁷⁹ Expert Report of Allen Ferrell, Ph.D. at 57-67.

⁸⁰ *ibid.*

59. The Ferrell Report clearly outlined the intent and mechanisms that Ripple implemented to increase market liquidity for XRP. Economists typically define liquidity as the “ease with which an asset can be converted into the economy’s medium of exchange.”⁸¹ Stocks and bonds generally can be sold quickly with low transaction costs and therefore are relatively liquid assets. In contrast, selling a house or art collectible generally requires more effort and thus these assets are considered less liquid.⁸² The Ferrell Report details Ripple’s effort to increase XRP liquidity through two different mechanisms: the first is to pay for the services of wholesale purchasers and market makers to facilitate XRP transactions on over-the-counter (“OTC”) and centralized digital asset platforms and the second is to have XRP listed on digital asset platforms and fund volume incentives for increased platform trading.

60. In the first instance, Ripple expended effort to engage with intermediaries to make XRP trading less costly and more widely available to new purchasers.⁸³ Peer-to-peer trading between wallets on the XRP Ledger is akin to an OTC market. In the absence of a centralized matching system, a buyer must search for a seller, incurring large search costs. To facilitate greater ease of transaction and increase liquidity of XRP, Ripple entered into agreements with wholesale purchasers such as [REDACTED], [REDACTED], [REDACTED] and [REDACTED] to serve as intermediaries for XRP trading.⁸⁴ According to the Ferrell Report, in exchange for a discounted wholesale rate, these firms hold XRP inventory and act as intermediaries to facilitate the trading of XRP through OTC trading desks.⁸⁵ Ripple also contracted with market makers that purport to increase liquidity of XRP on digital asset platforms and the XRP Ledger by filling these platforms’

⁸¹ Mankiw, N., *Principles of Economics*, 8th edition, 2016 at 605.

⁸² *ibid.*

⁸³ Expert Report of Allen Ferrell, Ph.D. at 57-59.

⁸⁴ Expert Report of Allen Ferrell, Ph.D. at 61.

⁸⁵ [REDACTED] and XRP II, *Letter Agreement*, September 18, 2017. (RPLI_SEC_0000861); *Amendment to Letter Agreement*, December 27, 2017. (RPLI_SEC_0000488); [REDACTED] and XRP II, *Master XRP Purchase Agreement*, August 3, 2017. (RPLI_SEC_0000792).

order books with bids and offers.⁸⁶ By paying for the services of these intermediaries, Ripple sought to reduce transaction costs for potential buyers and sellers and make XRP more accessible to new potential buyers.

61. In the second instance, Ripple made efforts to get XRP listed on various new digital asset platforms and enlisted the platforms' efforts to increase XRP trading volume and liquidity. According to the Ferrell Report, Ripple made efforts to have XRP listed on at least seven major digital asset platforms in 2017.⁸⁷ New listings on digital asset platforms help make XRP more accessible for purchase to new buyers across different trading venues and countries. Professor Ferrell further asserts "in an effort to facilitate market liquidity at these cryptocurrency exchanges, Ripple funded volume incentive and trading fee rebate programs at the cryptocurrency exchanges."⁸⁸ Another way to summarize these statements is that Ripple's effort to develop a liquid XRP market by entering into contracts to list XRP on new digital asset platforms is consistent with incentivizing increased trading volume and lowering transaction costs. The impact of this effort is to increase demand—and therefore price—for XRP across a larger investor base.

62. Before discussing the extensive academic evidence on the relationship between liquidity and asset prices, I briefly discuss the basic economic intuition and principles behind market liquidity and its positive price effects. If one could choose to hold either a liquid or illiquid asset, most people will prefer the more liquid asset because it can be more easily converted to cash upon short notice and therefore is more valuable than an asset which cannot be monetized as easily. For two assets that are otherwise identical, a buyer will pay more for the liquid asset. Stated another

⁸⁶ ██████ Market Making Agreement, March 31, 2014. (RPLI_SEC 0947000); ██████ Market Making Agreement, February 7, 2014. (RPLI_SEC 0507336); ██████ and Ripple Payments, Master XRP Market Maker Agreement, July 29, 2019. (RPLI_SEC 0899563).

⁸⁷ Expert Report of Allen Ferrell, Ph.D. at 63.

⁸⁸ *ibid.*

way, if one can increase an asset's liquidity by making it easier and less costly to buy or sell the asset, it will make the asset more valuable all else being equal. This is the reason why privately held firms whose shares cannot be easily traded are typically valued at a discount relative to firms whose shares can be bought or sold with minimal transaction costs. Increasing liquidity is one of the reasons why firms seek to be publicly listed on stock exchanges and why even after an initial listing, firms often seek additional international listings. This is also a reason why digital assets are often listed on multiple digital asset platforms, as discussed further below.

63. Extensive academic research has shown that increasing asset liquidity tends to lead to higher trading volume, lower transactions costs, and ultimately higher asset prices in traditional financial markets [Amihud and Mendelson (1986), Kadlec and McConnell (1994), Foerster and Karolyi (1999), Miller (1999), Roosenboom and Dijk (2009)]. Foerster and Karolyi (1999) found that cross-listing of securities on new stock exchanges lead to higher asset prices due to exposure to a larger investor base. The positive effect that increasing liquidity has on prices also holds true for digital asset markets. Momtaz (2019) analyzes the performance of digital assets after their initial exchange listings and identifies an average abnormal return of 15% on the first day. Benedetti (2019) analyzes secondary market listings for 3,625 digital assets on 108 marketplaces and observed raw positive cumulative returns of 49% and market-adjusted returns of 16% for a 2-week window around the first cross-listing event. Ante (2019) analyzes 327 secondary platform listings for 180 digital assets and similarly found significant abnormal return of 5.7% on the day of the listing event and 9.2% in the three-day window around the listing date. Listing digital assets on new platforms, and therefore creating new investor bases and increasing liquidity, has an even greater positive effect on prices than in traditional stock markets.

64. Thus, the efforts of Ripple to develop a liquid market for XRP is consistent with efforts to increase XRP value. Ripple's contracts with intermediaries and listings across digital asset platforms are consistent with removing barriers to investment, exposing XRP to new buyers from new markets who can now purchase the asset and help increase XRP visibility. Similar to the investor recognition hypothesis [Merton (1987)], Ripple expands XRP investor base and increases XRP's value by increasing the degree of investor recognition of the project. By introducing new investors to purchase XRP, existing investors can realize profits by selling their holdings to new buyers.

D. RIPPLE AND ITS EXPERT HAVE COMMUNICATED THIS POSITIVE RELATIONSHIP BETWEEN LIQUIDITY AND PRICE

65. In direct contrast to the Ferrell Report's assertion that "Ripple's XRP Distributions Did Not Increase XRP Price Return," Ripple communicated to potential investors that Ripple's XRP distribution strategies would drive demand and have a positive effect on XRP prices. For example, in an email on July 22, 2014 to a potential investor, Phil Rapoport (Ripple's Director of Markets and Trading) references Ripple's distribution strategy published publicly on Ripple's website that states "Our goal in distributing XRP is to incentivize actions that build trust, utility, and *liquidity* in the network...If we distribute XRP with these goals in mind, over time we expect to see *an increase in demand for XRP that more than offsets the additional supply* we inject into the market (emphasis added)."⁸⁹ The distribution strategy outline continues to state that Ripple expects these distributions strategies "to result in a stable or *strengthening XRP exchange rate against other currencies* (emphasis added)." The efforts to increase liquidity that the Ferrell Report extensively detailed (and were explained in the previous section) were dependent on

⁸⁹ Re: XRP Bulk Purchase. ([REDACTED]_Ripple_0002422).

Ripple’s XRP distributions to market makers, exchanges, and key participants. As also explained in the previous section, efforts to increase liquidity are associated with an increase in price. Therefore, it should be understood that Ripple’s distribution efforts at least in part would be associated with increasing XRP price, or as Ripple puts it “strengthening XRP exchange rate.” Indeed, Ripple and its executives communicated this very fact to the public.

66. Public and private communications from Ripple and its executives also highlight this common positive relation between liquidity and prices and that Ripple must exert effort to make XRP markets more liquid. For example, in an internal company email on February 19, 2016, Bob Way (Ripple’s Integration Architect) references a study he conducted to analyze XRP’s potential to become a bridge asset, and the study acknowledges “XRP’s value is tied directly to its liquidity...*XRP becomes more valuable as its liquidity increases* (i.e. instantaneous demand) (emphasis added).”⁹⁰ Mr. Way’s study further acknowledges that “increases in volume directly support increases in XRP prices.” In addition, this relationship between liquidity and price is also acknowledged by David Schwartz, Ripple’s Chief Technology Officer, who publicly states on Twitter, “Liquidity tends to correlate with price...”⁹¹ Additionally, in internal documents discussing the valuation of Ripple, Ripple makes clear that its institutional investors place an illiquidity discount on the company’s valuation due to the illiquid nature of its XRP holdings, stating “No matter how it's packaged, an illiquid asset will face a steep discount.”⁹² To this end, Ripple is incentivized to increase the liquidity of XRP as it directly benefits its own XRP holdings by increasing XRP prices and making XRP easier for Ripple to monetize by selling XRP to new buyers.

⁹⁰ XRP Bridge Currency Papers. (RPLI_SEC 0364717).

⁹¹ Twitter. David Schwartz. 2018. <https://twitter.com/joelkatz/status/966021274018357253>.

⁹² Proposal to Consider XRP Escrow Schedule. (RPLI_SEC 0754085).

67. Moreover, Ripple’s expert has demonstrated in his own written opinion that liquidity is a key determinant of asset value. An expert report authored by Professor Ferrell for a different matter acknowledges that:

*In analyzing these investment decisions, it is important to recognize that the private value to a participant of illiquid undiversified holdings of Company stock will generally be lower than the fair market value of that Company stock. This follows from basic economic principles. In particular, the value of any financial asset to an individual depends on the risk, expected returns, and liquidity of that asset. All else equal, an asset with higher expected returns will be more valuable than an asset with lower expected returns. Similarly, an asset with lower risk will be more valuable than an asset with higher risk, all else equal. And, **a more liquid asset will be more valuable than a less liquid asset, all else equal** (emphasis added).⁹³*

68. Additionally, Professor Ferrell asserts that “the number of exchanges that list XRP continued to grow even after Ripple stopped their distributions to cryptocurrency exchanges around April 2018” and that “trading and market liquidity at the vast majority of exchanges has **developed organically** (emphasis added).”⁹⁴ This is contrary to Ripple’s own statements as detailed by Mr. Way’s report and moreover, whether or not Ripple actually stopped expending efforts to list XRP on more platforms after April 2018 is tangential. The key point is Ripple’s early efforts to actively manage the liquidity of XRP helped set in motion—in Professor Ferrell’s own words—“a virtuous feedback whereby ‘liquidity demand begets liquidity supply’” and helped attract more market participants to transact in XRP.

69. Consistent with a large body of academic literature on liquidity and asset prices, Ripple’s effort to increase liquidity in the manners detailed by the Ferrell Report would have had the precise effect of increasing XRP transaction volume and demand and therefore, increasing XRP price. Similarly, public and private communications and Professors Ferrell’s previous writing

⁹³ Report of Allen Ferrell in *James A. Bacon et al. v. Stiefel Laboratories, Inc.*, (No. 09-21 871-KING).

⁹⁴ Expert Report of Allen Ferrell, Ph.D. at 65.

indicate that Ripple and its expert agree with the notion that the effort of Ripple to increase liquidity is directly consistent with increasing XRP's price.

E. PROFESSOR FERRELL'S REGRESSION ANALYSIS ON XRP DISTRIBUTIONS AND PRICES IS FLAWED BOTH EMPIRICALLY AND CONCEPTUALLY

70. To empirically demonstrate that “Ripple’s efforts do not impact XRP prices”, Professor Ferrell erroneously attempts to test whether Ripple’s efforts—as measured by XRP distributions—had a statistically significant impact on XRP prices. The Ferrell regression analyzes the rate of XRP distributions against XRP price returns while controlling for market factors and other controls purportedly from my academic paper [REDACTED] [REDACTED]⁹⁵ Professor Ferrell finds no significant statistical relation and thus from this result concludes that XRP long-run price returns cannot be attributed to the efforts of Ripple.⁹⁶ However, Professor Ferrell fails to reconcile the contradictory nature of his conclusion with Ripple’s own public and private comments on the relationship between XRP distributions and price as discussed in Section II.D, and indeed no conclusions can be inferred from his analysis because it is flawed for at least five reasons as detailed below.

i. Regression Uses Nonstandard 28-day Event Window

71. The Ferrell Report uses a nonstandard fixed 28-day event window that potentially obscures the timing between trading behavior and price movement. Professor Ferrell examined Ripple’s aggregate distributions using a 28-day window instead of the more standard daily or intraday window when dealing with flows. Professor Ferrell states that he is “[F]ollowing the

⁹⁵ The author of this expert report is the same [REDACTED] who [REDACTED] that the Ferrell Report relied upon.

⁹⁶ Expert Report of Allen Ferrell, Ph.D. at 51-55.

framework”, but my academic paper uses intraday data in the empirical analyses. The literature seeking to examine the relationship between asset returns and trading activity typically uses daily or intraday data [(Chordia, Roll, Subrahmanyam (2002), Chordia and Subrahmanyam (2004); [REDACTED] as longer windows will obscure the important timing between returns and trading behavior [Sias, Starks, and Titman (2006)]. Indeed, the major point of a paper by Sias, Starks, and Titman (2006) is that longer windows make it impossible to discern whether the examined trading activity and relationship with a stock price occurs before the price, with the price, or after the price movement.

72. Professor Ferrell cites Fama and French (2015) and Liu and Tsyvinski (2021) who use monthly returns (though they do not deal with flows/distributions like the literature above) but these papers do not use his ad hoc 28-day window approach. Notably, Professor Ferrell cannot cite **any** peer-reviewed academic papers that have implemented his ad-hoc use of an exact 28-day window.

ii. XRP Distributions are Denominated in U.S. Dollars Rather Than XRP Units

73. The Ferrell Report denominates distributions in U.S. Dollars rather than XRP units.

[REDACTED]

Since XRP value has significantly increased during the 2013-2020 period that Professor Ferrell’s analysis encompasses,⁹⁷ denominating XRP distributions in U.S. Dollars assigns heavier weight on distributions in later years when XRP price was relatively much higher and less weight on the earlier years. Conceptually, XRP distributions would likely be more influential relative to price in the earlier time periods when the market for XRP was much smaller and more illiquid. Thus, constructing the series in dollars biases the test against finding a relationship.

⁹⁷ CoinMarketCap. XRP Prices. <https://coinmarketcap.com/currencies/xrp/>.

iii. Regression Analysis Fails to Account for Ripple's Active Management of XRP Distributions

74. An insignificant relationship between XRP returns and XRP distributions, particularly over as long a window as 28 days, might indicate that Ripple was effective in managing XRP distributions, as explained below and in my October 4, 2021 Original Report.⁹⁸ The regression fails to account for Ripple's own actions to time XRP distributions in relation to past prices, which could deliver the exact type of insignificant result that Professor Ferrell purports to find. This type of regression cannot be used to conclude that distributions do not impact returns, because the distributions are not random but timed inversely with past returns.

75. XRP distributions introduce new XRP supply to the market and, all else being equal, would exert downward pressure on XRP price. However, as shown in my Original Report,⁹⁹ internal communications indicate that Ripple and its executives recognized this potential relationship and actively directed market makers to time programmatic sales in relation to how XRP price moves. For example, around an upcoming news announcement, [REDACTED] (VP of Finance) stated to GSR, "We want to keep the bots off for now but expect to make a news announcement on Thursday. If the news has positive impact and price rises, we would like to start selling into that. However, if price is not rising we will want to hold off."¹⁰⁰ In another example, between December 2014 and January 2015, comments found in a GSR historical daily sales report indicate GSR and Ripple coordinated XRP sales in a manner consistent with stopping or reducing sales to mitigate impact when XRP prices were declining.¹⁰¹

⁹⁸ Expert Report of [REDACTED] at 21-26.

⁹⁹ *ibid.*

¹⁰⁰ Email from [REDACTED] June 1, 2016. (GSR00004438).

¹⁰¹ Excel Export - 2014-2016 - 2t - Liquidity extraction report. (RPLI_SEC 0679467-467).

76. As explained in my Original Report, Ripple also directed purchases of XRP which the Ferrell regression fails to measure. This is an additional reason why the approach of using XRP distributions is incomplete and incorrect.

77. My Original Report also conducted a formal regression analysis that found from January 2015 to at least September 2019 certain market makers including [REDACTED] and [REDACTED]—consistent with directives from Ripple—tended to sell less when prices were falling and to sell more when prices were stabilized or rising.¹⁰² Ripple is incentivized to closely monitor XRP prices in order to maintain high or stable XRP prices and avoid large sell-offs that would devalue their own XRP holdings. Thus, conceptually, given that XRP sales were related to past prices and this relationship is not accounted for in the regressions, it is not clear what one could learn from the Ferrell Report’s analysis even if were performed in a meaningful manner.

iv. Timing of XRP Transfers May Not Be Consistent with Sales of XRP

78. The Ferrell Report defines the timing of an XRP distribution as occurring on the date when XRP is first transferred out from the Ripple Escrow and other Ripple accounts.¹⁰³ This is another point where Professor Ferrell fails to properly apply the methodology of [REDACTED] [REDACTED] which he purportedly “implement[s].”¹⁰⁴ The date of the XRP distribution as defined by Ferrell does not necessarily serve as a proxy for the exact timing of when XRP is sold to the public on digital asset platforms, which is the timing used by [REDACTED] This distinction is important because the Ferrell regressions calculate XRP returns using digital asset

¹⁰² Expert Report of [REDACTED] at 24-26.

¹⁰³ “The date of each distribution in the data is calculated as follows. For transfers involving Ripple’s Main Balance [consisting of Ripple Escrow and other Ripple accounts], the date on which the transfer occurred is used. For transfers and adjustments (further discussed below) missing an exact date, the first date of the month on which the distributions occurred is used. For transfers involving a Reserved or Custody account, the date on which the transfer first occurred is used.” Expert Report of Allen Ferrell, Ph.D. at C-7.

¹⁰⁴ Expert Report of Allen Ferrell, Ph.D. At 54.

platform prices sourced from CryptoCompare.¹⁰⁵ For example, according to Professor Ferrell, an XRP distribution could be a transfer from the Escrow to a Custody account used to administratively hold funds on behalf of another entity.¹⁰⁶ If a Custody account is not associated with a digital asset platform (and Professor Ferrell provides no evidence of such), it would be implausible to expect an XRP distribution to have any impact on XRP prices on digital asset platform since these distributions have yet to be sold to the general public.

v. *The Ferrell Regression Analysis Does Not Account for the Long-run Effect that XRP Distributions Have on Increased Liquidity, Recognition, and Demand*

79. The Ferrell regression analysis is not designed to properly assess the long-run effect of XRP distributions on demand and therefore, prices. The effect of increasing liquidity on investor demand, which would impact prices, need not happen instantaneously or in the short-term as acknowledged by Ripple. Indeed, as Professor Ferrell noted in his report, “[i]t takes time to develop a liquid market on a particular platform or for a particular asset.”¹⁰⁷ For example, distributing XRP units by selling into the market might have an immediate short-term negative effect on prices due to the increased supply, but in the long-run might increase demand for the asset—and therefore its price—by growing the investor base and recognition and making XRP more familiar to investors. There is a large body of literature demonstrating that investors purchase stocks with which they are more familiar [Huberman (2001) and Grinblatt and Keloharju (2001)], buy and sell stocks they already own [Frazzini and Lamont (2008)], and buy relatively more stocks with increased recognition and visibility [Gervais, Kaniel, and Mingelgrin (2001) and Grullon, Kanatas, and Weston (2004)]. Thus, distributing XRP into the hands of more holders should have a positive

¹⁰⁵ Expert Report of Allen Ferrell, Ph.D. at C-1.

¹⁰⁶ Expert Report of Allen Ferrell, Ph.D. at C-6.

¹⁰⁷ Expert Report of Allen Ferrell, Ph.D. at 65.

long-run effect on liquidity and prices as Ripple itself stated and planned: “*over time* we expect to see *an increase in demand for XRP that more than offsets the additional supply* we inject into the market (emphasis added).”¹⁰⁸ In other words, Ripple executives recognized that selling shares might depress shares in the short-term—an impact that they tried to minimize, as discussed earlier— but that such efforts would be beneficial to the price of XRP “over time.” According to Ripple, the intended effect of XRP distributions is to “incentivize actions that *build*...liquidity in the network” which should lead to “an increase in demand for XRP” and “*strengthening XRP exchange rate*.”¹⁰⁹ Yet, unlike the statements from Ripple, Professor Ferrell’s regression analysis is not focused on the long-term effects of Ripples XRP distributions but is rather focused only on the contemporaneous impact.

¹⁰⁸ Re: XRP Bulk Purchase. (██████████_Ripple_0002422).

¹⁰⁹ *ibid.*

Executed November 12, 2021



 Ph.D.

[illegible]

[REDACTED]

[REDACTED]

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International Finance Conference

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[REDACTED]

V. APPENDIX B: RECENT TESTIMONY AND COURT-FILED EXPERT REPORTS

Testimony in the last four years and court-filed expert reports

Case Name: [REDACTED]
Case No.: [REDACTED]
[REDACTED]
Date: [REDACTED] (Report), [REDACTED] (Deposition), [REDACTED] (Report)

Case Name: [REDACTED]
Case No.: [REDACTED]
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Any other documents, materials, or web tools identified in my report, including data obtained from CoinMarketCap, Google, Ripple Insights, XRP Markets, and Wayback Machine.

VII. APPENDIX D: TOP 100 RETAILERS

The table below lists the top 100 retail companies ranked by 2020 US sales, as estimated by Kantar Group for the National Retail Federation.¹¹⁰ It excludes restaurants, and the listed dollar amounts are each company's worldwide retail-exclusive sales.

Rank	Company	2020 Retail Sales (billions)	Rank	Company	2021 Retail Sales (billions)
1	Walmart	\$430.82	51	WinCo Foods	\$8.74
2	Amazon.com	\$187.27	52	Good Neighbor Pharmacy	\$8.45
3	The Kroger Co.	\$131.57	53	Southeastern Grocers (BI-LO)	\$8.23
4	The Home Depot	\$121.26	54	Army & Air Force Exchange	\$7.90
5	Costco Wholesale	\$121.22	55	J.C. Penney Company	\$7.48
6	Walgreens Boots Alliance	\$104.70	56	Save-A-Lot	\$7.25
7	Target	\$92.40	57	Bass Pro	\$6.80
8	CVS Health Corporation	\$89.53	58	Staples	\$6.63
9	Lowe's Companies	\$82.88	59	Williams-Sonoma	\$6.61
10	Albertsons Companies	\$69.73	60	Sprouts Farmers Market	\$6.45
11	Apple Stores / iTunes	\$55.06	61	Speedway	\$6.38

¹¹⁰ National Retail Federation. Top 100 Retailers 2021 List. <https://nrf.com/resources/top-retailers/top-100-retailers/top-100-retailers-2021-list>.

12	Royal Ahold Delhaize USA	\$51.17	62	AVB Brandsource	\$6.28
13	Publix Super Markets	\$44.84	63	Big Lots	\$6.20
14	Best Buy	\$43.24	64	Ulta Salon, Cosmetics & Fragrance	\$6.15
15	Aldi	\$34.54	65	Foot Locker	\$6.03
16	Dollar General	\$33.74	66	Ikea North American Services	\$5.91
17	H.E. Butt Grocery	\$29.01	67	Office Depot	\$5.78
18	TJX Companies	\$25.17	68	Academy Sports	\$5.69
19	Dollar Tree	\$25.08	69	Burlington	\$5.63
20	Ace Hardware	\$22.69	70	Camping World	\$5.45
21	Meijer	\$19.59	71	Discount Tire	\$5.15
22	Wakefern / ShopRite	\$18.27	72	Sephora (LVMH)	\$5.01
23	7-Eleven	\$18.25	73	Piggly Wiggly	\$4.85
24	Macy's	\$17.15	74	Hobby Lobby Stores	\$4.79
25	AT&T Wireless	\$17.02	75	Petco	\$4.78

26	Rite Aid	\$16.37	76	Michaels Stores	\$4.76
27	Verizon Wireless	\$15.49	77	Stater Bros Holdings	\$4.68
28	BJ's Wholesale Club	\$15.43	78	Signet Jewelers	\$4.65
29	Kohl's	\$15.33	79	Exxon Mobile Corporation	\$4.63
30	PetSmart	\$13.18	80	Defense Commissary Agency	\$4.60
31	Menards	\$12.80	81	My Demoulas	\$4.55
32	Ross Stores	\$12.51	82	Advance Auto	\$4.35
33	Dell Technologies	\$12.31	83	Dillard's	\$4.16
34	Hy Vee	\$11.97	84	Smart & Final	\$4.12
35	Wayfair	\$11.61	85	Weis Markets	\$4.11
36	O'Reilly Auto Parts	\$11.60	86	Ingles	\$4.02
37	Gap	\$11.51	87	Golub	\$3.91
38	Qurate Retail	\$11.21	88	Shell Oil Company	\$3.88
39	Health Made Systems	\$10.94	89	Save Mart	\$3.86

40	Wegmans Food Market	\$10.84	90	Total Wine & More	\$3.82
41	L Brands	\$10.80	91	Caseys General Store	\$3.72
42	AutoZone	\$10.70	92	Guitar Center	\$3.43
43	True Value Co.	\$10.60	93	GameStop	\$3.40
44	Tractor Supply Co.	\$10.57	94	American Eagle	\$3.33
45	Giant Eagle	\$9.97	95	UNFI	\$3.17
46	Alimentation Couche-Tard	\$9.95	96	Grocery Outlet	\$3.13
47	Dick's Sporting Goods	\$9.57	97	Belk	\$3.13
48	Sherwin-Williams	\$9.40	98	Lululemon	\$3.04
49	Nordstrom	\$9.35	99	Sears Holdings	\$3.03
50	Bed Bath & Beyond	\$8.91	100	AMPM	\$3.00

VIII. APPENDIX E: ANALYZED PURPORTED “USE CASES” FROM APPENDIX C OF ADRIAENS REPORT

The table below presents a filtered list of purported “use cases” as identified in Appendix C of the Adriaens Report. A qualitative filter was applied to remove any “use cases” that pertain to digital asset platform trading, payment services, lending and investments, wallet applications, casino/gambling, and those that could not be accessed online or appear to no longer be an operating domain as of the date of this report. All details listed below including Entity Name, Category, and Website are copied as is from Appendix C of Adriaens Report.

List of XRP “Use Cases”		
Entity Name	Category	Website
2sync	Hosting Provider	https://www.2sync.co/
AGRsicurezza	Consultancy	https://www.agrsicurezza.it/
AirVPN	VPN Hosting	https://airvpn.org/
Alphacat	Robo-advisor Marketplace	https://alphacat.io/
Alquicoche	Rental car booking site	https://www.alquicoche.es/
Alternative Airlines	Air travel booking site	https://www.alternativeairlines.com/
AMLBot	AML support	https://amlbot.com/#~np1
Antalya Homes	Real Estate	https://www.antalyahomes.com/
As You Wish Bodywork LTD	Massage	https://www.messagebook.com/Denver~Massage~AsYouWishBodywork?utm_source=cryptwerk
AsiaMTM Group	Manufacturing, Trading, Marketing	https://asiamtm.com/
Autohaus-seidl.at	Physical car dealer	https://www.autohaus-seidl.at/
BCHLX	Blockchain applications	https://bchlx.com/
Beachhead	Game	https://beachhead.com/
Beliani	Furniture	https://www.beliani.co.uk/
Beschriftungsprofi	Marketing services (lettering, etc.)	https://www.beschriftungsprofi.at/
Bidali	Purchase/Gift Card	https://www.bidali.com/
Bitcoin.travel	Travel booking site	https://bitcoin.travel/
Bitgild	Precious metals Marketplace	https://www.bitgild.com/
BitStickers	Marketplace	https://bitstickers.net/
Blockdaemon	Networking	https://blockdaemon.com/
Bluzelle	Technology	https://bluzelle.com/
Boatsters Black	Yachts for Charter	https://boatstersblack.com/
BookcoinShop	Marketplace	https://bookcoinshop.com/
Booking.com	Hotel booking site	https://www.booking.com/
BookMauritiusHotels	Hotel Booking	https://www.bookmauritiushotels.com/
Bravsy	Travel agency	https://bravsy.com/
Bronn Travel	Travel Agency	https://bronntravel.com.ua/
Bullion79	Precious metals Marketplace	https://bullion79.com/
BuyWithCoins	Marketplace	https://www.buywithcoins.online/

List of XRP "Use Cases"		
Celtic Gold	Precious metals Marketplace	https://www.celticgold.eu/en/
Chainalysis	Blockchain Analysis	https://www.chainalysis.com/
Club Turismo	Travel agency	https://www.clubeturismo.com.br/
Coin Monster Store	Purchase/Fashion Apparel	https://coinmonster.store/
Creative Click	Video/animation Productions	https://www.creativeclick.co/
Crypto Coffee	Marketplace	https://crypto-coffee.com/
Crypto Cove	Purchase/Fashion Apparel	https://cryptocove.io/
Crypto Emporium	Purchase/Fashion Apparel, Cars, Electronics	https://cryptoemporium.eu
Crypto Posters	Poster store	https://www.cryptocurrencyposters.com/
Crypto Shopper	Purchase/Fashion Apparel	https://cryptoshopper.store/
Crypto Voucher	Buy vouchers	https://cryptovoucher.io/
Crypto Whale Clothing	Marketplace	https://cryptowhaleclothing.com/
Cryptoholic Shop	Purchase/Fashion Apparel	https://www.cryptoholicshop.com
Cryptojaunt	Travel Booking Platform	https://www.cryptojaunt.com/
Cryptopet	Marketplace	http://cryptopet.com/
Cryptosa	Advisory Firm	https://cryptosa.org/
Delphin hotel	Hotel	https://delphinhotel.com/
DEV	Online community	https://dev.to/
Diaz Plasencia y Asociados	Legal services	http://diazplasencia.com/
Digitec	Marketplace	https://www.digitec.ch/
Do You Space	Architecture firm	http://www.doyouspace.net/about-3/
Dokter Online	Online pharmacy	https://www.dokteronline.com/en/
Dynasty Goddess Hair	Hair extension shop	https://www.dynastygoddess.com/
Eat Me Clothing	Purchase/Fashion Apparel	https://eatmeclothing.com/
Ecstatic	Purchase/Fashion Apparel	https://ecstaticstore.com/
Ecwid	E-commerce hosting	https://www.ecwid.com/
eGifter	Purchase/Gift Card	https://www.egifter.com/buy-gift-cards-with-xrp
EnterBillions	Spam Blocker	https://enterbillions.co/
Evident Proof	Data Verification/Proof Service	https://evident-proof.com/
Expedia	Travel booking site	www.expedia.com
Extratherm	Construction services	http://www.extratherm.at/2018/
FAMprint	Printing	https://www.fam-print.ch/
Fetch Portraits	Photographer	https://www.fetchportraits.com/
FinFreeOTC	P2P Cryptocurrency Marketplace	https://finfreeotc.com/
Frank and Beans	Purchase/Fashion Apparel	https://www.frankandbeans.com.au/
Galaxus	Marketplace	https://www.galaxus.ch/
Game Servers Today	Game server hosting	https://gameservers.today/
Gas Aces	Gas and heat repairs	https://www.gasaces.com/

List of XRP "Use Cases"		
GBI	Bullion store	https://www.bullioninternational.com/
Giacobbe & Co.	Jewelery	https://giacobbeandco.com/
Glance Bay Luxury Shuttle	Rental car company	https://hankcooper.com/shuttle
GoLance (ODL)	Online Workforce Platform	https://golance.com/
Greitai	Travel booking site	https://www.greitai.lt/
Grupo Terramovil del Mediterraneo SL	Car dealer	https://criptocoches.com/
Harmonie im Garten	Garden goods	https://www.harmonie-im-garten.at/
Hauer 1a	Contractor	https://www.hauer1a.at/
Haus Irene	Accommodations	https://www.ferienwohnungen-irene.de/
Henley Audio	A/V services for events	https://henleyaudio.com/
Hide.me	VPN	https://hide.me/en/
Hosteria Encantó del Lolog	Accommodations	https://encantodellog.com/
Hostiso	Hosting Provider	https://hostiso.com/
Hostsailer	Technology	https://hostsailor.com/how-to-pay-with-cryptocurrencies/
Hostwinds	Web Hosting Provider	https://www.hostwinds.com/
Hotel Ploberger	Accommodations	https://www.hotel-ploberger.at/de/
Hotel Vienna	Accommodations	https://www.hotelvienna.at/
Indybudmarv2	3D printing and design	https://www.budmarv2.com/
itlawyers.gr LLC	Legal services	https://www.itlawyers.gr/
KAZARTT	Purchase/Fashion Apparel	https://www.kazartt.com/
Keyless Technologies	Authentication software	https://keyless.io/
Keys4coins	Marketplace	https://www.keys4coins.com/
KinkyBoots & Bits	Purchase/Fashion Apparel	https://www.kinkyboots.com.au/
Kristina Rybaltchenko	Purchase/Fashion Apparel	https://rybaltchenko.com/
Kryptohotel Vienna	Accommodations	https://www.kryptohotel.at/
Kun Koro	Counseling	https://kunkoro.kiwi/indexeng.html#
Laferla	Insurance company	https://www.laferla.com.mt/
Lord	Purchase/Fashion Apparel	https://www.lord.gr/en/
Mader Reisen	Travel agency	https://www.maderreisen.at/Home/
Marketing Empire	Digital Marketing Agency	https://marketingempire.co.uk/
Mental Market	Marketplace	http://mentalmarketing.com/
Mileata	Watch manufacturer	https://mileata.com/
Mopesa Car Rental	Rental car service	https://www.facebook.com/mopesacarrentalkoronadal/
NordVPN	Technology	https://nordvpn.com/
OffshoreDedicated	Hosting Provider	https://offshorededicated.net/
Omgserv	Minecraft Server	https://www.omgserve.com/en/

List of XRP "Use Cases"		
Omni Projects	Software	omnigroup.com
Opu Labs	Healthcare e-commerce	https://www.opulabs.com/
PexPeppers	Marketplace	https://pexpeppers.com/
PPC Protect	Fraud Prevention	https://ppcprotect.com/
PrestigeTime	Online luxury watch store	https://www.prestigetime.com/
Print Ted	Purchase/Fashion Apparel	https://print-ted.com/
Propy	Marketplace	https://propy.com/browse/
Qeeq	Rental car service	https://www.qeeq.com/
Quantoz (Nexus)	Transaction processing	https://quantoz.com/solutions/cryptocurrency-services/
R3	Software	https://www.r3.com/
Refundo	Tax refund	https://refundo.com/
Rights	Digital Market	https://rights-dapp.io/
Search Candy	Digital Marketing	https://www.searchcandy.uk/
Selly	E-Commerce	https://selly.io/
Sesocio	Investment platform	https://sesocio.com.ar/
Shopify	Marketplace	https://www.shopify.com/
Snel.com	Technology	https://www.snel.com/
Sologenic	Tokenization	https://www.sologenic.com/
Soulful Essence	Marketplace	https://soulfulessence.com/
SSL Dragon	SSL Certificate Marketplace	https://www.ssldragon.com/
Standing Ovation	Event Service Provider	https://standingovation.ch/en/
Starting Point Mental Health	Therapy	https://www.therapydelandfl.com/
Stats Autos Spa	Auto detailing	https://stats-auto-spa.com/
Staxe	Tokenization	https://staxe.io/
STYRA Technologies	Interledger gateway provider	https://www.styra.com/
SubscribeStar	Crowdfunding	https://www.subscribestar.com/
Suisse Gold	Precious metals Marketplace	https://www.suissegold.eu/en/
Swiss Crypto Vault	Crypto storage	https://swisscryptovault.ch/
Talizi Hair Transplantation Clinic	Hair transplants	https://tsilosani.com/en/
TapJets	Travel	https://www.tapjets.com/
Tegiwa	Imports	https://www.tegiwaimports.com/
ti&m	IT service provider	https://www.ti8m.com/
TMD STUDIO LTD.	Architecture	https://www.tmd.studio/
Toca Coffee	Marketplace	https://www.tocacoffee.com/
TorGuard	Technology	https://torguard.net
Trachtenhans	Purchase/Fashion Apparel	https://www.trachtenhans.com/
Transfer4cheap	Travel	https://www.transfer4cheap.com/en
Travala	Purchase/Travel	https://www.travala.com/payment/xrp

List of XRP "Use Cases"		
Travolier Hoteliermart	Loyalty program	https://travolier.com/
Tron Network Store	Merchandise store	https://tronnetwork.store/
TruViewz	Photographer	https://truviewz.com/
Utimez	Web Design	https://ultimez.com/
Unicef	Charity	https://www.unicef.fr/
Upvotes Club	Marketplace	https://upvotes.club/
Varle.It	Online marketplace	https://www.varle.it/
VeePN	VPN	https://veepn.com/
ViaBTC	Cryptocurrency mining service	https://www.viabtc.com/
Victory Rentals	Outdoor equipment rental	https://www.victory-rentals.com/
Villa Eros Apartments	Accommodations	https://villa-eros.weebly.com/
Volkskraftwerk	Energy technology	https://www.volkskraftwerk.com/
Vontobel Investment Banking	Wealth management, active asset management and investment solutions	https://www.vontobel.com/en-int/
W.Hamond	Jewelry Store	https://whamond.com/
WeMakePrice	Mall	https://front.wemakeprice.com/main
Winipple	Purchase/Fashion Apparel	https://winipple.com/shop/
WooCommerce	E-commerce hosting	https://woocommerce.com/
Wrecky Car Wreckers	Towing service	https://www.wrecky.com.au/
XcelTrip	Travel booking site	https://www.xceltrip.com/
xCryptoCrash	Gambling site	https://xcryptocrash.com/
Yacht Break	Yacht Charter	https://theyachtbreak.com/
Zwei Fach Vertriebs GmbH	Interior decorating	https://www.zwei-fach.at/