

EXHIBIT 52

**UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA**

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In re RIPPLE LABS INC. LITIGATION)	Case No.: 4:18-cv-06753-PJH
)	
)	

Expert Report of Dr. Mukarram Attari

February 3, 2023

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I. Qualifications

1. I am a Vice President and the co-Leader of the Finance practice at Charles River Associates (“CRA”), an economic consulting firm that I joined in January 2003. From 1997 to 2002, I was an Assistant Professor in the Finance Department of the Business School at the University of Wisconsin–Madison. I obtained my Ph.D. in Finance from the University of Iowa in 1997. Before that, I was a student in the graduate program in business administration at the Indian Institute of Management, Ahmedabad. I received an undergraduate degree in engineering from the University of Bombay.
2. At the University of Wisconsin–Madison and at the University of Iowa, I taught undergraduate, masters and Ph.D.-level courses on investments, corporate finance, international finance, fixed income securities, derivatives and advanced asset pricing. My academic research and teaching have focused on a wide range of finance topics, including market efficiency, the valuation of stocks, bonds, derivatives and structured products, credit risk and the effect of liquidity on asset prices.
3. My research has been published in top academic journals, such as The Journal of Finance, the Journal of Financial Economics, the Journal of Financial and Quantitative Analysis and the Journal of Economic Dynamics and Control. My work has also been published as a chapter in the book, “Derivatives and Financial Mathematics.” During my time at CRA I have written on a number of topics relating to financial markets and trading, including on digital assets.
4. Through my academic research and teaching, and my consulting and expert work at CRA, I have extensive experience in issues relevant to the class certification and damages phases of litigation. My clients have included government agencies, corporations (and their officers and directors), financial institutions, auditors and institutional and individual investors. I have drawn upon my teaching, research and consulting experience in formulating my opinions in this matter.
5. A copy of my curriculum vitae is attached as Appendix 1, along with a list of my publications. Appendix 1 also contains information on matters where I have filed expert reports or have testified.

II. Assignment and Summary of Opinions

A. Assignment

6. Lead Plaintiff Bradley Sostack (“Lead Plaintiff”) has filed a Motion for Class Certification that defines the federal claims putative class as “[a]ll persons or entities who purchased XRP from May 3, 2017 through the present and who have (a) retained the XRP, and/or (b) sold the XRP at a loss.” Lead Plaintiff also asks for the certification of a class of “all persons or entities who purchased XRP from Defendants and/or from any person or entity selling XRP on Defendants’ behalf from May 3, 2017 through the present and who have (a) retained the XRP, and/or (b) sold the XRP at a loss” for its claims under California state law.^{1,2}
7. I have been asked by counsel for Defendants Ripple Labs Inc. (“Ripple”), its wholly owned subsidiary XRP II, LLC and Ripple’s CEO Bradley Garlinghouse (collectively, “Defendants”) to conduct two analyses: (1) to evaluate if it is possible to determine with common evidence whether an XRP purchaser experienced a gain or loss as a result of their purchase and sale of XRP from May 3, 2017, through November 18, 2022 (“Analysis Period”),³ and (2) to identify if XRP purchasers could have made a gain from their purchase and sale of XRP during the Analysis Period.
8. I was asked to only consider a situation where XRP was purchased and sold on a centralized exchange.⁴ While XRP was available for purchase on multiple centralized exchanges throughout the Analysis Period, I understand that XRP could also be acquired

¹ Notice of Motion and Motion for Class Certification; Memorandum of Points and Authorities in Support, dated November 18, 2022, USDC Northern District of California, Case No. 4:18-cv-06753-PJH (“Motion for Class Certification”), pdf p. 2.

² “XRP” is the native digital asset of the XRP Ledger. <https://xrpl.org/xrp.html>

³ In the Motion for Class Certification, the Lead Plaintiff proposed a class period from “May 3, 2017 through the present.” Since the Motion for Class Certification is dated November 18, 2022, I use that as the end date for the Analysis Period. Motion for Class Certification, pdf pp. 2-3. I am not offering an opinion on the appropriate dates of the class period proposed by the Lead Plaintiff. My analysis uses May 3, 2017, as the first possible XRP purchase date and November 18, 2022, as the last possible XRP sale date. I was asked by counsel for Defendants to exclude intraday trading – purchases and sales that occurred on the same day – from my analysis. Therefore, XRP sales on May 3, 2017 (the first day of the Analysis Period) and XRP purchases on November 18, 2022 (the last day of the Analysis Period) are not considered in my analysis.

⁴ Centralized exchanges facilitate the trading of digital assets by functioning as trusted intermediaries in trades and can also act as custodians by storing and protecting customer funds. See, for example, <https://www.gemini.com/cryptopedia/centralized-exchanges-crypto#section-trading-on-a-centralized-exchange>.

in other ways beyond a purchase on a centralized exchange. For example, XRP could be exchanged on decentralized exchanges like the decentralized exchange within the XRP Ledger,⁵ transferred between digital asset accounts on the XRP Ledger,⁶ donated to charities,⁷ used in negotiated bilateral contractual arrangements between private parties, used to pay dividends,⁸ or used for consumptive purposes such as buying goods or services.⁹ I do not consider these alternative approaches of acquiring and using XRP in my analysis.

B. Summary of Opinions

9. My opinions in this matter are summarized below and explained in the sections that follow.
 - a. Purchaser-specific transaction-by-transaction information is needed to determine whether a purchaser of XRP earned a gain or suffered a loss because of their purchase and sale of XRP during the Analysis Period.¹⁰ Given the daily and intraday fluctuations in XRP prices during the Analysis Period, and further differences in XRP prices across exchanges and currency pairs, it is important that any gain or loss analysis accounts for the actual transaction data for each individual purchaser of XRP. To determine the gain or loss for an XRP purchaser, one must know (i) the quantities of XRP purchased and sold, (ii) the purchase price and the currency used for purchase, (iii) the sale price and the currency received via sale, and (iv) the currency exchange rate applicable to the

⁵ <https://xrpl.org/decentralized-exchange.html>.

⁶ “An ‘Account’ in the XRP Ledger represents a holder of XRP and a sender of transactions,” and it is represented by an identifying address. “Whoever has the secret key corresponding to the account’s address has full control over the account and all XRP it contains.” <https://xrpl.org/accounts.html>. An account on the XRP Ledger can send “a direct XRP-to-XRP payment, which transfers XRP directly from one account in the XRP Ledger to another.” <https://xrpl.org/direct-xrp-payments.html>.

⁷ For example, via BitPay which supports XRP as one of their digital assets. <https://bitpay.com/directory/nonprofits/>.

⁸ See, for example, <https://www.coindesk.com/markets/2019/08/29/sbi-holdings-subsidiary-will-pay-a-shareholder-dividend-in-xrp/>.

⁹ For example, Coinbase Card allows users to spend digital assets to make payments for purchases (similar to a debit card) and withdraw cash from an ATM. In November 2019, Coinbase Card expanded to include XRP as one of the supported digital assets. <https://en.ethereumworldnews.com/buy-coffee-xrp-coinbase-card-expands/>

¹⁰ A transaction-by-transaction analysis would be required irrespective of whether an evaluation of gain or loss is made for each individual transaction or at the “portfolio level” for an individual, i.e., aggregating all transactions made by an individual. The outcome of gain or loss determined at the portfolio level for an individual can differ from the outcome of gain or loss determined for each transaction made within that portfolio.

purchase and sale currencies.^{11,12} In the absence of detailed records that are not available, it is not possible to determine the gain or loss experienced by an XRP purchaser.

- b. While it is not possible to determine whether a particular XRP purchaser experienced a gain or loss without individualized, purchaser-specific data, available data on XRP prices from CryptoCompare indicates that a large portion of purchase-date/sale-date combinations during the Analysis Period would have resulted in a gain for XRP purchasers.

10. In the course of preparing my report, I have been assisted by staff at CRA working under my direction and supervision. CRA is being compensated at an hourly rate of \$1,275 for my work in this matter, and the compensation is not dependent on my opinions or the outcome of this matter. My work in this matter is ongoing, and I reserve the right to supplement or modify my opinions to the extent new information comes to light subsequent to the date of this report. A complete list of the documents that I have considered in forming my opinions is attached as Appendix 2.

III. Overview of Exchanges and Trading Pairs

11. I use information from CryptoCompare, a global, digital asset market data provider, for my analysis.¹³ During the Analysis Period, XRP was listed for trade on 162 exchanges covered by CryptoCompare.¹⁴ During the Analysis Period, there were 223 currencies

¹¹ The term currency as used in this report refers to both fiat currencies and digital assets.

¹² Additionally, transaction fees can also impact the determination of gain or loss. Transaction fees are determined by each individual exchange. For example, Coinbase notes that it “may charge fees when [a user] buy[s], sell[s], or convert[s] cryptocurrencies. Fees are calculated at the time [the user] place[s] [their] order and may be determined by a combination of factors, including but not limited to [their] location, the selected payment method, the size of the order, and market conditions such as volatility and liquidity.” <https://help.coinbase.com/en/coinbase/trading-and-funding/pricing-and-fees/fees>

¹³ <https://www.cryptocompare.com/about-us/>

¹⁴ A full list of these exchanges is provided in Exhibit 1.1. This is a list of exchanges covered by CryptoCompare that listed XRP for trade on at least one day during the Analysis Period.

that could be used to purchase or sell XRP across the 162 exchanges covered by CryptoCompare that listed XRP for trade.¹⁵

12. XRP can be traded using different currencies, including the US Dollar (“USD”), the Euro (“EUR”), Tether (“USDT”),¹⁶ Bitcoin (“BTC”), Ether (“ETH”), among many others. XRP trading pairs involving Bitcoin, Tether, Ether and the US Dollar are most commonly listed by exchanges. Of the 162 exchanges covered by CryptoCompare that listed XRP for trade during the Analysis Period, 78% offered XRP trading using Bitcoin, 57% of the exchanges offered XRP trading using Tether, 35% of the exchanges offered XRP trading using Ether and 28% of the exchanges offered XRP trading using the US Dollar.¹⁷
13. Most exchanges list XRP trading pairs with XRP as the *base* currency, which can be purchased or sold using another currency (called the *quote* currency). For instance, if BTC was used to trade XRP, the trading pair would typically be listed as XRP-BTC (or XRP/BTC), where the price of XRP would be quoted in terms of BTC, i.e., a price of XRP-BTC = 0.00002016 would imply that 0.00002016 BTC can be used to purchase 1 XRP or the sale of 1 XRP corresponds to receiving 0.00002016 BTC in return.¹⁸
14. The XRP trading pairs offered are determined by the exchange itself and differ across exchanges. Not all exchanges offer the same XRP trading pairs. For example, during the Analysis Period, Binance offered 18 different XRP trading pairs while Bitfinex only offered three.¹⁹ The three XRP trading pairs offered by Bitfinex during the Analysis

¹⁵ A full list of these currencies is provided in Exhibit 1.2. When one currency is traded for another currency, it is commonly referred to as a trading pair. Certain exchanges started or stopped listing specific trading pairs at various times during the Analysis Period. The count here considers currencies that were available for purchasing or selling XRP on these exchanges for at least one day during the Analysis Period.

¹⁶ Tether is a “stablecoin”, a digital asset whose value is pegged to one US Dollar. <https://tether.to/en/how-it-works/>

¹⁷ Exhibit 1.3. Certain exchanges started or stopped listing specific trading pairs at various times during the Analysis Period. The count here considers exchanges where these currencies were available for purchasing or selling XRP for at least one day during the Analysis Period.

¹⁸ A few exchanges, like CoinField (<https://www.coinfield.com/>), list some trading pairs with XRP as the quote currency, such as BTC-XRP. For example, a price of BTC-XRP = 49525.31 implies that 49525.31 XRP can be used to purchase 1 BTC or the sale of 1 BTC corresponds to 49525.31 XRP.

¹⁹ Exhibit 1.1. Certain exchanges started or stopped listing specific trading pairs at various times during the Analysis Period. The count here considers trading pairs that were listed on these exchanges for at least one day during the Analysis Period.

Period were XRP-USD, XRP-BTC and XRP-USDT. While Binance offered the XRP-EUR pair as one of its 18 XRP trading pairs, Bitfinex did not.²⁰

15. An individual or entity permitted to buy or sell digital assets on Bitfinex and wanting to purchase XRP using Euros on Bitfinex would not be able to do so directly. However, the individual or entity could use other trading pairs on Bitfinex to create a similar trade position indirectly by increasing their XRP holdings and decreasing their Euro holdings. For example, the individual or entity can buy the XRP-BTC pair on Bitfinex, which in turn increases their holdings of XRP and depletes their holdings of Bitcoin. The individual or entity can then buy an equivalent amount of the BTC-EUR pair offered on Bitfinex, such that it replenishes their Bitcoin holdings and depletes their Euro holdings for the amount intended. The net effect of this trade results in the individual or entity having purchased XRP using Euros.
16. Once an individual or entity purchases XRP on a centralized exchange, they can subsequently use that XRP in a variety of ways, including, but not limited to, holding it, selling it back on the same exchange, transferring it to a digital asset wallet²¹ on a different exchange and selling there, transferring it to an XRP Ledger digital asset account, donating it to charities,²² or using it for consumptive purposes such as buying goods or services.²³ XRP purchasers can also use XRP (like other assets) as part of a leveraged trading strategy – e.g., purchasers may use their holdings of XRP as collateral to borrow against it and use the borrowed amount to purchase additional XRP or another digital asset – or lend their XRP to others to earn an agreed-upon interest.^{24,25}

²⁰ CryptoCompare data.

²¹ Digital asset wallets are used to store passwords (private keys) that give users access to their digital assets. See, for example, <https://www.coinbase.com/learn/crypto-basics/what-is-a-crypto-wallet>.

²² For example, via BitPay which supports XRP as one of their digital assets. <https://bitpay.com/directory/nonprofits/>.

²³ For example, Coinbase Card allows users to spend digital assets to make payments for purchases (similar to a debit card) and withdraw cash from an ATM. In November 2019, Coinbase Card expanded to include XRP as one of the supported digital assets. <https://en.ethereumworldnews.com/buy-coffee-xrp-coinbase-card-expands/>

²⁴ <https://www.binance.com/en/loan/data>

²⁵ My analysis does not consider short selling of XRP, i.e., I do not consider situations where the XRP is sold before the date of purchase.

IV. XRP's Price Is Volatile

17. I discuss the US Dollar price of XRP in this section, because along with Bitcoin, Ether, and USDT, XRP trading pairs involving these currencies are most commonly listed by exchanges, as discussed in paragraph 12.²⁶ These are only four of the 223 currencies that could be used to purchase or sell XRP on the 162 exchanges covered by CryptoCompare during the Analysis Period.
18. The minimum reported price of XRP during the Analysis Period was \$0.05 and the maximum reported price of XRP during the Analysis Period was \$3.29, when intraday high and low prices for the XRP-USD pair are considered.^{27,28} The high and low prices of XRP reported by individual exchanges or other data providers can be different from the high and low prices reported by CryptoCompare because of protocols used in reporting prices.²⁹ For example, Coinbase reports an all-time high XRP price of \$3.84 on January 3, 2018.³⁰
19. The reported close price of XRP fluctuated between \$0.06 and \$2.78 during the Analysis Period, as shown in Figure 1.³¹ There was also significant intraday volatility in the reported price of XRP. During the Analysis Period, on average, prices fluctuated 10% within a trading day, with intraday fluctuations exceeding 100% on three trading days.³²

²⁶ The First Amended Complaint (see, for example, paragraphs 13 and 169) discusses losses in terms of US Dollars. Consolidated First Amended Complaint, dated March 25, 2020, USDC Northern District of California, 18-6753. The results using the USDT price of XRP are similar to the US Dollar results. This is because USDT is a stablecoin whose value is pegged to one US Dollar. To avoid repetition, I do not show the USDT results of my analyses in the main body of the report but include them in supporting exhibits.

²⁷ CryptoCompare data. Digital asset markets allow trading 24 hours a day, seven days a week. CryptoCompare's data considers a trading day to start and end at midnight UTC for this market and reports the high, low, open and close prices each day.

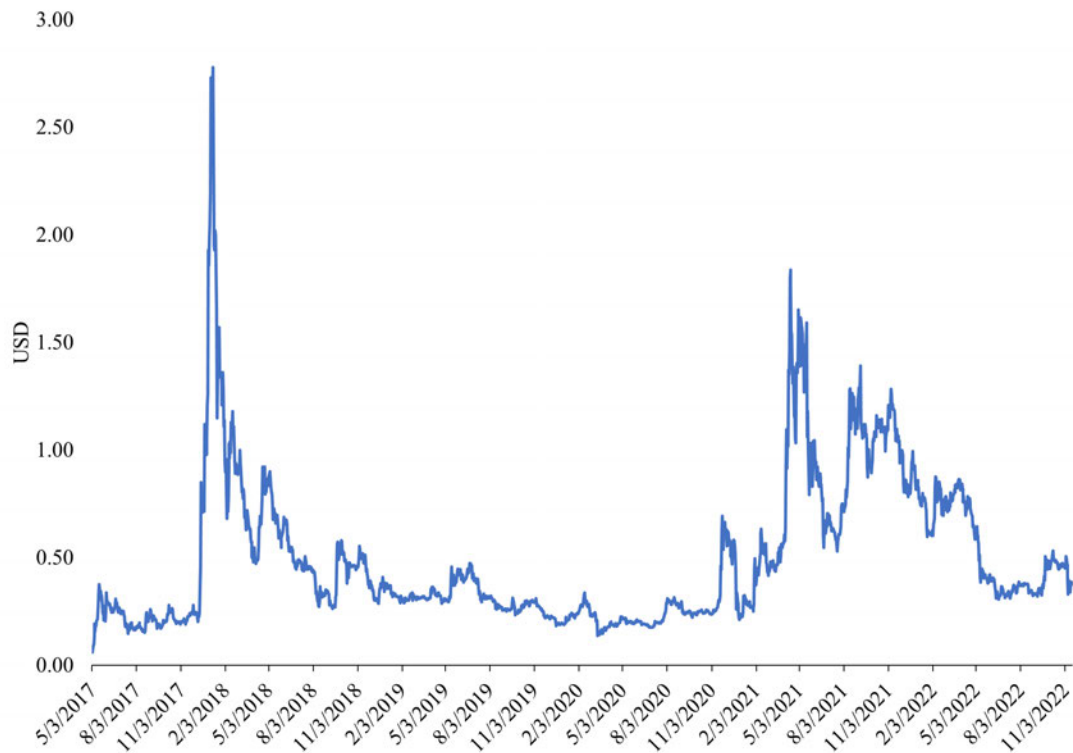
²⁸ CryptoCompare uses a proprietary index calculation methodology termed Crypto Coin Comparison Aggregated Index ("CCCAGG") methodology to aggregate transaction data across exchanges. As a result, the XRP prices reported by CryptoCompare can be different from the actual XRP price on a given exchange. CCCAGG Methodology, Published by CC Data Limited trading as CryptoCompare, March 18, 2022.

²⁹ Different data sources can consider different constituent exchanges and have different methodologies for aggregating XRP prices across the constituent exchanges.

³⁰ XRP was available for trading on Coinbase from February 28, 2019. <https://www.coinbase.com/blog/xrp-is-now-available-on-coinbase>. Coinbase does not provide a data source for its reported all time high of \$3.84 on January 3, 2018. <https://www.coinbase.com/price/xrp>.

³¹ CryptoCompare data. CryptoCompare's reported close price for a trading day is as of 11:59:59.999 p.m. UTC.

³² Exhibit 3. The three days are May 27, 2017, December 23, 2020, and February 1, 2021. Using the difference between reported high and low prices across trading days.

Figure 1: XRP-USD Daily Close Price from May 3, 2017, to November 18, 2022³³

20. The change in price of XRP also varies across trading pairs because the values of the currencies that can be used to trade XRP themselves fluctuate. For example, on July 18, 2022 (i.e., between midnight UTC on July 17 and July 18, 2022), the reported close price of XRP increased 6.5% in US Dollar terms. However, over the same period, the reported close price of XRP quoted in Bitcoin decreased by 1.2% and the reported close price of XRP quoted in Ether also decreased by 10.0%.³⁴
21. XRP prices can also diverge across exchanges. For instance, at any point in time, the price of XRP-USD on Coinbase can be different from the price on Binance or any other exchange. Price differences can exist for several reasons such as varying levels of trade volume and liquidity across exchanges, or different fees charged by exchanges. Varying

³³ CryptoCompare data. Using the reported close price for the trading day.

³⁴ CryptoCompare data.

prices across exchanges might create arbitrage opportunities where buyers and sellers profit from purchasing XRP on one exchange and selling at another.³⁵

V. Bases for Opinions

22. In this section, I provide the bases for my opinions presented in paragraph 9. To determine if XRP purchasers experienced a gain or loss requires considering the specific currency used to purchase or sell XRP. While the focus of my analysis is on select XRP trading pairs, my opinion that purchaser-specific transaction-by-transaction information is needed to determine whether a purchaser of XRP experienced a gain or loss would apply to XRP trading pairs involving any currency.

A. Identifying Purchasers Who Experienced Gains and Losses on XRP Trades Requires Individualized Trade Data

23. Purchaser-specific transaction-by-transaction information is needed to determine whether any purchaser of XRP earned a gain or suffered a loss because of their purchase and sale of XRP during the Analysis Period.³⁶ Given the daily and intraday fluctuations in XRP prices during the Analysis Period, and further differences in XRP prices across exchanges and currency pairs, it is important that any gain or loss analysis accounts for the actual transaction data for each individual purchaser of XRP. To determine the gain or loss for an XRP purchaser, one must know (i) quantities of XRP purchased and sold, (ii) the purchase price and the currency used for purchase, (iii) the sale price and the currency received via sale, and (iv) the currency exchange rate applicable to the purchase and sale currencies.³⁷ In the absence of detailed records that are not available, it is not possible to determine the gain or loss experienced by an XRP purchaser.
24. Imagine the simplest scenario: An XRP purchaser buys a single unit of XRP and sells that single unit of XRP for the same currency at some later date. In this simple situation,

³⁵ <https://www.gemini.com/cryptopedia/crypto-arbitrage-crypto-exchange-prices>.

³⁶ As I have noted above, a transaction-by-transaction analysis would be required irrespective of whether an evaluation of gain or loss is made for each individual transaction or at the “portfolio level” for an individual, i.e., aggregating all transactions made by an individual. The outcome of gain or loss determined at the portfolio level for an individual can differ considerably from the outcome of gain or loss determined for each transaction made within that portfolio.

³⁷ As noted above in footnote 12, transaction fees can also impact the determination of gain or loss. Transaction fees are determined by each individual exchange.

the purchaser earns a profit if the sale price is higher than the purchase price and a loss if the sale price is lower than the purchase price. However, if no information is available on purchase and sale prices and the currency used to purchase or sell XRP, it is not possible to determine whether a purchaser earned a gain or incurred a loss even in this simple situation.

25. Determining whether a purchaser experienced a gain or loss gets increasingly complicated in other scenarios: for example, if a person or entity purchases some amount of XRP on one date and sells it on multiple dates in the future. In this situation, the price and the associated sale quantity for each transaction is needed to determine whether the purchaser earned a gain or incurred a loss on the sales. This scenario gets further complicated if the purchase of XRP also occurred in multiple transactions at different prices. In other words, if XRP is purchased and sold over multiple transactions across multiple days (or even different times of the same day), an assessment of the relevant purchases and sales must account for the price of each transaction for the corresponding portion of purchase and sale quantities.
26. Moreover, a gain or loss analysis becomes increasingly complicated if the XRP purchased is sold over multiple transactions using different currencies. For example, if the XRP was sold over four separate transactions using four different currencies for each (say, the US Dollar, the Euro, Bitcoin and Ether), then the sale price of XRP for each of these transactions must be considered to determine whether the XRP purchaser experienced a gain or loss.
27. In yet another example, imagine an individual or entity who purchases a single unit of XRP on Coinbase using Bitcoin, but sells the single unit of XRP on Binance and receives Ether. The assessment of gain or loss from this transaction requires knowing the transaction prices of XRP, as well as the relevant exchange rate of Bitcoin for Ether or for the two into a common currency (e.g., the US Dollar) at the time of the transactions on the two exchanges.
28. In addition to the detailed information requirements described above, the determination of whether an XRP purchaser experiences a gain or loss requires assumptions regarding

the matching of purchases and sales if the purchaser has sold some and continues to hold the remainder of their XRP. Whether a purchaser earned a gain or incurred a loss on quantities sold can depend on the way quantities sold are matched to purchases.

Different rules commonly used for matching sales to purchases for the purpose of computing gains and losses – e.g., first-in-first-out (“FIFO”), last-in-first-out (“LIFO”), and weighted average prices – can give different answers as to whether a gain was earned or a loss incurred on each purchase and matched sale.

29. While data on prices at which XRP traded is available from certain exchanges and aggregated by data providers like CryptoCompare,³⁸ that data does not include information needed to identify purchasers or sellers, or to match purchases and sales.
30. Even if the exchanges on which purchases and sales of XRP took place are identified, ascertaining gain or loss for individual XRP purchasers requires knowing the date and time of purchase and sale. For instance, an individual who purchased XRP using US Dollars at the reported close price of \$0.76 on February 6, 2018, and subsequently sold the XRP using US Dollars after one day on February 7, 2018, at the reported close price of \$0.72 would have incurred a loss. Another individual who also purchased XRP using US Dollars on February 6, 2018, but instead sold the XRP using US Dollars after three days, on February 9, 2018, at the reported close price of \$0.92, would have earned a gain.³⁹
31. Intraday price variability can also impact whether purchasers of XRP experienced a gain or loss. An individual who purchased XRP using US Dollars on February 7, 2018, at the reported high price of \$0.81 and subsequently sold the XRP using US Dollars after one day on February 8, 2018, at the reported low price of \$0.71, would have incurred a loss. In contrast, another individual who also purchased XRP using US Dollars on February 7, 2018, but at the reported low price of \$0.70, and sold the XRP using US

³⁸ As noted above in footnote 28, CryptoCompare uses a proprietary index calculation methodology termed Crypto Coin Comparison Aggregated Index (“CCCAGG”) methodology to aggregate transaction data across exchanges. As a result, the XRP prices reported by CryptoCompare can be different from the actual XRP price on a given exchange. CCCAGG Methodology, Published by CC Data Limited trading as CryptoCompare, March 18, 2022.

³⁹ CryptoCompare data.

Dollars one day later at the reported high price of \$0.79 on February 8, 2018, would have earned a gain.⁴⁰

32. The currency used for purchase and sale of XRP also makes a difference to whether an individual experienced a gain or loss.⁴¹ Figure 2 and Figure 3 present the reported close prices of the XRP-BTC and XRP-ETH pairs during the Analysis Period, in addition to the XRP-USD pair. The prices of digital assets like Bitcoin and Ether are in themselves volatile and not pegged to the US Dollar.⁴² As a result, trading XRP using these digital assets can have a different implication for gain or loss, as opposed to trading XRP using the US Dollar. For instance, if XRP was purchased using US Dollars on March 22, 2020, at the reported XRP-USD close price of \$0.15, and sold using US Dollars 3 days later on March 25, 2020, at the reported XRP-USD close price of \$0.16, the purchaser would have earned a gain. If instead, XRP was purchased using Bitcoin on March 22, 2020, at the reported XRP-BTC close price of 0.000025, and sold using Bitcoin 3 days later on March 25, 2020, at the reported XRP-BTC close price of 0.000024, the purchaser would have suffered a loss, unlike the individual who experiences a gain when using the US Dollar to trade XRP.⁴³

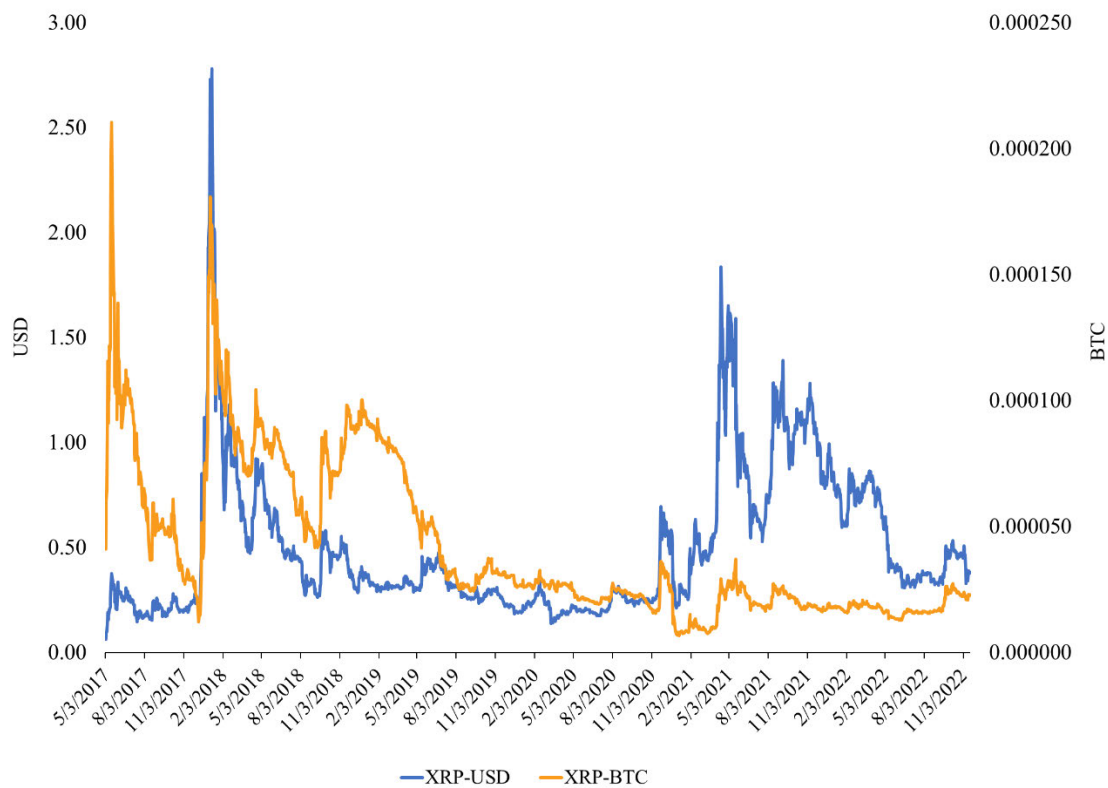
⁴⁰ CryptoCompare data.

⁴¹ This assumes that the purchase and sale is in the same currency. The analysis would be further complicated if the purchase and sale was each in a different currency.

⁴² <https://www.reuters.com/article/sponsored/bitcoin-ethereum-performance>

⁴³ CryptoCompare data.

Figure 2: XRP-USD and XRP-BTC Daily Close Price from May 3, 2017, to November 18, 2022⁴⁴

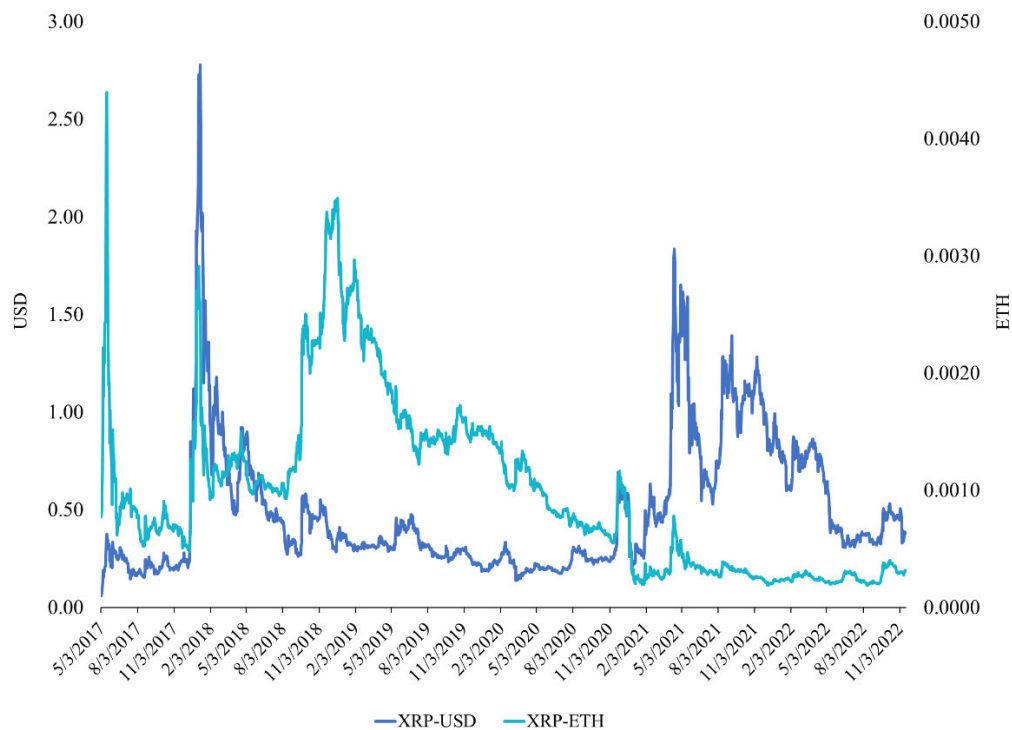


33. Similarly, if XRP was purchased using Ether on March 22, 2020, at the reported XRP-ETH close price of 0.00121, and sold using Ether 3 days later on March 25, 2020, at the reported XRP-ETH close price of 0.00119, the purchaser would have also suffered a loss.⁴⁵

⁴⁴ CryptoCompare data. Using the reported close price for the trading day.

⁴⁵ CryptoCompare data.

Figure 3: XRP-USD and XRP-ETH Daily Close Price from May 3, 2017 to November 18, 2022⁴⁶



34. Table 1 shows that gains or losses experienced on XRP purchases and subsequent sales can vary across purchase dates, holding periods, and the currency of purchase. It considers different purchase dates during the Analysis Period grouped together into calendar quarters and different lengths of potential holding periods (or sale dates) and reports the percentage of purchase-date/sale-date combinations with a loss.⁴⁷ The first set of columns reports the percentage of purchase-date/sale-date combinations with a loss, assuming that all purchasers sell XRP the day after purchase.⁴⁸ The second set of columns assumes that all purchasers sell XRP within three days of purchase (that is, the sale date is either the day after, two days after or three days after the purchase date), and so on.

⁴⁶ CryptoCompare data. Using the reported close price for the trading day.

⁴⁷ Exhibit 2.2 shows the percentage of purchase-date/sale-date combinations with a gain (zero or positive profit). The percentages reported in Exhibit 2.2 are equal to one minus the percentages reported in Table 1.

⁴⁸ My analysis assumes that XRP cannot be sold on or before the date of purchase.

Table 1: Percentage of Purchase-Date/Sale-Date Combinations with Loss (Red shading shows percentages greater than 90%)⁴⁹

Purchase Period		Sell XRP within X Days of Purchase																											
Start	End	Within 1D			Within 3D			Within 7D			Within 30D			Within 90D			Within 180D			Within 360D			Through 11/18/22						
		USD	BTC	ETH	USD	BTC	ETH	USD	BTC	ETH	USD	BTC	ETH	USD	BTC	ETH	USD	BTC	ETH	USD	BTC	ETH	USD	BTC	ETH				
5/3/2017	6/30/2017	36%	46%	46%	46%	51%	49%	50%	52%	49%	59%	66%	60%	73%	83%	79%	74%	90%	86%	39%	83%	66%	24%	96%	68%				
7/1/2017	9/30/2017	46%	61%	53%	50%	62%	54%	52%	66%	55%	49%	72%	54%	35%	84%	60%	21%	63%	46%	10%	39%	23%	7%	77%	45%				
10/1/2017	12/31/2017	46%	49%	58%	41%	51%	57%	37%	53%	52%	30%	56%	55%	21%	34%	38%	19%	19%	25%	20%	15%	17%	27%	63%	48%				
1/1/2018	3/31/2018	61%	66%	57%	64%	70%	58%	70%	74%	57%	79%	81%	48%	81%	76%	54%	90%	86%	66%	95%	81%	41%	89%	96%	68%				
4/1/2018	6/30/2018	53%	54%	62%	51%	57%	58%	54%	60%	57%	67%	63%	66%	81%	77%	68%	87%	78%	46%	93%	65%	23%	77%	92%	64%				
7/1/2018	9/30/2018	55%	60%	42%	58%	58%	45%	59%	64%	43%	63%	69%	34%	46%	41%	14%	52%	24%	9%	60%	39%	12%	52%	86%	65%				
10/1/2018	12/31/2018	57%	49%	50%	58%	49%	50%	61%	47%	46%	62%	39%	40%	79%	41%	47%	79%	53%	60%	85%	76%	80%	58%	94%	95%				
1/1/2019	3/31/2019	54%	70%	57%	58%	72%	56%	58%	78%	55%	54%	92%	65%	47%	97%	86%	40%	99%	93%	69%	99%	97%	42%	100%	99%				
4/1/2019	6/30/2019	51%	69%	65%	50%	71%	65%	51%	74%	68%	51%	83%	80%	52%	94%	90%	74%	97%	88%	87%	98%	93%	49%	100%	98%				
7/1/2019	9/30/2019	58%	50%	50%	57%	50%	53%	59%	48%	52%	69%	51%	44%	70%	39%	29%	80%	43%	34%	86%	64%	65%	37%	85%	89%				
10/1/2019	12/31/2019	49%	43%	52%	55%	46%	54%	56%	51%	55%	61%	68%	59%	62%	79%	76%	71%	87%	87%	65%	92%	94%	24%	96%	98%				
1/1/2020	3/31/2020	44%	52%	62%	43%	54%	62%	41%	56%	64%	41%	51%	67%	57%	62%	77%	61%	79%	89%	40%	84%	94%	14%	92%	98%				
4/1/2020	6/30/2020	49%	59%	66%	54%	64%	71%	55%	70%	75%	51%	77%	83%	40%	62%	93%	20%	60%	93%	10%	66%	94%	4%	76%	98%				
7/1/2020	9/30/2020	48%	46%	52%	47%	49%	53%	45%	52%	52%	45%	58%	64%	41%	56%	76%	28%	65%	75%	14%	64%	87%	6%	77%	94%				
10/1/2020	12/31/2020	52%	67%	61%	51%	70%	62%	49%	73%	65%	48%	72%	71%	43%	74%	75%	26%	74%	83%	14%	59%	91%	16%	65%	95%				
1/1/2021	3/31/2021	38%	52%	58%	42%	54%	56%	41%	49%	53%	28%	39%	39%	11%	21%	19%	6%	11%	17%	3%	5%	36%	20%	3%	46%				
4/1/2021	6/30/2021	54%	45%	55%	54%	48%	57%	54%	50%	58%	67%	57%	78%	68%	64%	81%	58%	71%	88%	70%	80%	94%	80%	80%	93%				
7/1/2021	9/30/2021	48%	50%	57%	47%	54%	59%	49%	59%	61%	42%	65%	63%	38%	61%	62%	48%	74%	80%	63%	81%	87%	71%	76%	81%				
10/1/2021	12/31/2021	51%	48%	60%	52%	53%	63%	55%	56%	64%	62%	57%	64%	83%	58%	61%	90%	58%	56%	95%	64%	53%	95%	62%	52%				
1/1/2022	3/31/2022	54%	49%	60%	50%	55%	58%	50%	57%	54%	49%	56%	49%	57%	57%	56%	78%	75%	60%	85%	60%	51%	85%	60%	51%				
4/1/2022	6/30/2022	65%	55%	53%	67%	58%	47%	70%	59%	46%	82%	62%	51%	82%	52%	47%	73%	40%	41%	75%	37%	38%	75%	37%	38%				
7/1/2022	9/30/2022	45%	40%	53%	45%	45%	55%	43%	45%	56%	36%	33%	54%	25%	19%	39%	23%	16%	34%	23%	16%	34%	23%	16%	34%				
10/1/2022	11/17/2022	58%	56%	54%	53%	55%	55%	55%	60%	60%	72%	77%	75%	74%	80%	78%	74%	80%	78%	74%	80%	78%	74%	80%	78%				
All Purchase Dates		51%	54%	56%	52%	56%	56%	53%	59%	56%	55%	62%	59%	54%	60%	60%	55%	63%	62%	55%	64%	64%	41%	82%	76%				

⁴⁹ Exhibit 2.1. Red shading highlights purchase periods and holding periods where percentages of purchase-date/sale-date combinations with loss were greater than 90%. Using the average of reported high and low prices during the trading day. Last possible sale date for any of the sell windows is assumed to be November 18, 2022.

35. For instance, consider XRP purchases using the US Dollar on any of the 92 days between October 1, 2017, and December 31, 2017. Information on the exact price at which an individual or entity purchased XRP on these dates is not available, as I have explained above. However, information is available on the reported high and low prices at which XRP was traded on any of these purchase dates. I use an average of the reported high and low price as a proxy for the average price purchasers paid for the XRP purchased on any day.⁵⁰
36. Further, assume that the individual or entity who purchased XRP using US Dollars between October 1, 2017, and December 31, 2017, sold that XRP using US Dollars the day after they purchased the XRP. For example, individuals or entities who purchased XRP using US Dollars on, say, October 1, 2017, sold that XRP using US Dollars a day later, on October 2, 2017. Similarly, for all the other purchase dates between October 1, 2017, and December 31, 2017, assume that purchasers who purchased XRP using US Dollars, sold the XRP using US Dollars the next day. As a result, for each of the 92 possible purchase dates, there is one corresponding sale date, i.e., 92 possible purchase-date/sale-date combinations. I compare the average price on a given purchase date to the average price on the corresponding sale date and find that 46% of the purchase-date/sale-date combinations would have resulted in a loss and the remaining 54% in a gain (zero or positive profit).⁵¹
37. For purchases made 3 years later using US Dollars, between October 1, 2020, and December 31, 2020, with a sale using US Dollars within one day of purchase, 52% of the purchase-date/sale-date combinations would have resulted in a loss and 48% in a gain (zero or positive profit). For the same purchase period with purchases using US Dollars between October 1, 2020, and December 31, 2020, but where the sale using US Dollars is made within 180 days of the purchase, 26% of the purchase-date/sale-date combinations would have resulted in a loss and 74% in a gain (zero or positive profit).

⁵⁰ I use the average price because it is more meaningful than the open and close prices which simply record the price at 12:00:00.000 a.m. UTC and 11:59:59.999 p.m. UTC, respectively, for a given trading day, as per CryptoCompare.

⁵¹ Exhibit 2.2 shows the percentage of purchase-date/sale-date combinations with a gain (zero or positive profit). The percentages reported in Exhibit 2.2 are equal to one minus the percentages reported in Table 1.

38. If instead of the US Dollar, Bitcoin was used for purchases and sales of XRP over the same purchase period between October 1, 2020, and December 31, 2020, and with a sale within 180 days of the purchase, 74% of the purchase-date/sale-date combinations would have resulted in a loss and only 26% in a gain (zero or positive profit).
39. The last row of Table 1 labeled “All Purchase Dates” considers all purchase dates during the Analysis Period from May 3, 2017, to November 17, 2022, and different holding horizons, and shows that across holding periods for the XRP-USD pair, 41% to 55% of purchase-date/sale-date combinations would have resulted in a loss, and 45% to 59% in a gain (zero or positive profit).
40. The results in Table 1 show substantial differences across purchasers making a gain or loss during the Analysis Period, based on purchase dates, sale dates and the currency of purchase and sale. Not only do the results reflect several purchase-date/sale-date combinations that would have resulted in XRP purchasers earning a gain, but they also show how a gain or loss outcome depends on the date of purchase, date of sale, and the currency used. Even for purchasers who bought their XRP on the same day and held it for the same period of time, there are material differences in their gain or loss outcomes depending on whether they transacted with US Dollars, Bitcoin, or Ether. The differences are even more pronounced when different purchase periods and holding periods are considered.
41. These substantial variations show that any assessment of gain or loss must account for purchase-by-purchase inputs on an individualized basis and accordingly, that it is not possible to evaluate gain or loss on an aggregate basis.

B. Purchasers of XRP would have Earned a Gain for a Large Portion of Purchase-Date/Sale-Date Combinations during the Analysis Period

42. Although determining whether any individual XRP purchaser experienced a gain or loss requires individual transaction level data, as discussed above, I was asked to identify if purchasers of XRP during the Analysis Period could have earned a gain. Using data on XRP prices from CryptoCompare, I conclude that there is substantial evidence that, for a

large percentage of possible purchase-date/sale-date combinations during the Analysis Period, XRP purchasers would have experienced gains when they sold the XRP.

43. For instance, consider all possible purchase-date/sale-date combinations, i.e., each purchase date from May 3, 2017, to November 17, 2022, as shown in the row labeled “All Purchase Dates” of Table 1, and for each purchase date, all dates after the purchase date until November 18, 2022 as possible sale dates, as shown in the column labeled “Through 11/18/22” of Table 1. For the XRP-USD pair, I find losses for 41% of all possible purchase-date/sale-date combinations as shown in Table 1 and a gain (zero or positive profit) for the remaining 59% of all possible purchase-date/sale-date combinations.
44. Similarly, as discussed in paragraph 39, considering all possible purchase dates during the Analysis Period from May 3, 2017 to November 17, 2022 and different holding horizons for the XRP-USD pair, I find that 41% to 55% of purchase-date/sale-date combinations result in losses, as shown in the last row of Table 1, while the remaining 45% to 59% of purchase-date/sale-date combinations result in gains (zero or positive profits) for purchasers of XRP.
45. Considering the last row of Table 1 for the XRP-BTC pair, I find that 54% to 82% of purchase-date/sale-date combinations result in losses, while the remaining 18% to 46% of purchase-date/sale-date combinations result in gains (zero or positive profits). Similarly, for the XRP-ETH pair, the last row of Table 1 shows that 56% to 76% of purchase-date/sale-date combinations result in losses, while the remaining 24% to 44% of purchase-date/sale-date combinations result in gains (zero or positive profits).
46. As shown in Table 1 above, there is no discernible pattern in the price of XRP that might indicate loss or gain as a rule. Simply excluding purchases made during a certain time period or below a certain price would not reliably exclude all or even most purchasers who sold for a gain.
47. My analysis in Table 1 has used the average of the reported high and low prices on both purchase dates and sale dates. As a sensitivity check, I conducted the analyses presented in Table 1 with different assumptions. Specifically, I conducted the same analysis

assuming that all XRP purchasers paid the reported high price for that day and subsequently sold at the reported low price on each of the possible sale dates. This “buy high-sell low” analysis provides an upper bound on the estimate of the number of days on which a purchaser might have sold at a loss.

48. The buy high-sell low results are consistent with my findings using average prices. Considering all possible purchase-date/sale-date combinations during the Analysis Period for the XRP-USD pair, i.e., each purchase date from May 3, 2017, to November 17, 2022, and for each purchase date, all dates after the purchase date until November 18, 2022, as possible sale dates, the buy high-sell low analysis finds losses for 46% of all possible purchase-date/sale-date combinations and gains (zero or positive profits) for 54% of them.⁵²

Submitted this 3rd day of February 2023.



Dr. Mukarram Attari

⁵² See Exhibits 2.3 and 2.4.

Appendix 1
Curriculum Vitae

MUKARRAM ATTARI

EXPERIENCE

2003 Onwards Charles River Associates, Boston, MA and Oakland, CA
2017 Onwards *Co-Leader of Finance Practice*
2008 Onwards *Vice President*
2005 – 2007 *Principal*
2004 *Associate Principal*
2003 *Senior Associate*

1997–2002 University of Wisconsin–Madison
Assistant Professor, Business School

1992 Arthur Andersen & Co. (Andersen Consulting), Bombay, India
Staff Consultant

1991 Reserve Bank of India, Bombay, India
Summer Intern

EDUCATION

1992-1997 University of Iowa, Iowa City, Iowa.
Doctor of Philosophy

1990-1992 Indian Institute of Management, Ahmedabad.
Post-Graduate Diploma in Management

1986-1990 University of Bombay, India.
Bachelor of Engineering

PUBLICATIONS AND WORKING PAPERS

“Crushed by a Rational Stampede: Strategic Share Dumping and Shareholder Insurrections.” With Suman Banerjee and Tom Noe. *Journal of Financial Economics*, 2006.

“Financially Constrained Arbitrage in Illiquid Markets.” With Antonio Mello. *Journal of Economic Dynamics and Control*, 2006.

“Arbitraging Arbitrageurs.” With Antonio Mello and Martin Ruckes. *Journal of Finance*, 2005.

“Discontinuous Interest Rate Processes: An Equilibrium Model for Bond Option Prices.” *Journal of Financial and Quantitative Analysis*, 1999.

“Models of the Term Structure of Interest Rates: A Survey.” *Derivatives and Financial Mathematics*, John Price (ed.), Nova Science Publishers, 1997.

“Strategic Under-Investment, Managerial Entrenchment and Ownership Structure of a Firm.” With Suman Banerjee.

“Option Pricing Using Fourier Transforms: A Numerically Efficient Simplification”

“Testing Interest Rate Models: What Do Futures and Options Data Tell Us?”

“Hedging in the Presence of Transactions Costs: Portfolios.”

CRA INSIGHTS

“Layered orders and spoofing allegations.” With Sam Lynch, Swati Kanori, and Fatih Fazilet. *CRA Insights*, September 2022.

“Exchange traded crypto assets.” With Sam Lynch, Swati Kanoria, and Kyle Calder. *CRA Insights*, August 2022.

“Factors affecting variations in securities class action claims rates.” With Aaron Dolgoff and Assen Koev. *CRA Insights*, October 2020.

“Primer on futures markets and spoofing allegations.” With Sam Lynch, Rahul Chhabra, and Fatih Fazilet. *CRA Insights*, September 2020.

“Navinder Sarao’s alleged Flash Crash trading strategies and CFTC spoofing allegations.” With Sam Lynch. *Insights: Financial Markets*, November 2015.

“Securities litigation settlement costs if large shareholders opt out.” With Aaron Dolgoff and Tiago Duarte-Silva. *CRA Insights*, June 2013.

“Economic issues in ETF litigation.” With Assen Koev. *CRA Insights*, December 2009.

“Discovering shareholder value in terra incognita.” With Christopher Ross. *CRA Insights*, December 2008.

“Litigation implications of the Auction Rate Security market freeze.” With Aaron Dolgoff. *CRA Insights*, May 2008.

Subprime mortgages: A primer on economic issues in litigation.” With Jim Fricano. *CRA Insights*, July 2007.

COURSES TAUGHT

Continuous Time Asset Pricing (Ph.D. students, Wisconsin)
Fixed Income (M.B.A. students, Wisconsin)
Futures and Options (Undergraduates and M.B.A. students, Wisconsin)
International Finance (Undergraduates, Wisconsin)
Corporate Finance (Undergraduates, Iowa)
Investments (Undergraduates, Iowa)

DISSERTATION COMMITTEES

RuthAnn Melbourne (Finance, Wisconsin)
Clemens Muller (Finance, Wisconsin)
Miguel Ferreira (Finance, Wisconsin)
James Basney (Computer Science, Wisconsin)

RESEARCH GRANTS, FELLOWSHIPS AND AWARDS

2001–2002 University of Wisconsin - Madison Graduate School Research Grant
1997 Outstanding Teaching Assistant Award, University of Iowa.
1995–1996 Ponder Fellowship, University of Iowa
1992–1993 Ponder Fellowship, University of Iowa.

PRESENTATIONS

Bar Association of San Francisco, “Derivatives and Insolvency” (2009) (with Suzanne Uhland from O’Melveny & Myers LLP).

IQPC’s “3rd Securities Litigation Conference,” panel on Subprime Credit Crisis (2007).

Federal Reserve Bank of Atlanta’s “Modern Financial Institutions, Financial Markets, and Systemic Risk Conference” (2006).

EXPERT ASSIGNMENTS

Fairholme Funds, Inc., et al, v. The Federal Housing Finance Agency, et al, District of Columbia, 13-1053 and In re Fannie Mae / Freddie Mac Senior Preferred Stock Purchase Agreement Class Action Litigations, District of Columbia, 13-1288, Expert Report filed February 1, 2022; Deposition February 14-15, 2022; Testimony at Jury Trial October 27-28, 2022.

State of New York, *et al*, v. Deutsche Telecom AG, *et al*, Southern District of New York, 19-5434, Expert Report filed November 4, 2019; Deposition November 20, 2019.

Lewis Cosby, *et al*, v. KPMG LLP, Eastern District of Tennessee, 16-121, Expert Report filed May 13, 2019; Deposition June 4, 2019; Rebuttal Report filed July 19, 2019.

Ambac Assurance Corporation v. EMC Mortgage Corporation, et al, Supreme Court of the State of New York, 650421/2011, Expert Report filed December 23, 2014; Rebuttal Report filed November 20, 2015; Deposition January 15, 2016.

Dalton Petrie, *et al*, v Electronic Game Card, Inc., *et al*, and Penny Pace, *et al*, v. Timothy Quintanilla, *et al*, Central District of California, 10-0252 and 14-2067, Expert Report filed June 1, 2015; Deposition June 15, 2015.

Wells Fargo Bank, N.A. v. Homebanc Corporation, District of Delaware, 07-51740, Affidavit filed June 16, 2014; Deposition August 6, 2014; Trial Testimony January 27, 2015.

Syncora Guarantee Inc. v. EMC Mortgage Corporation, Southern District of New York, 09-3106, Expert Report filed December 10, 2013.

In the Matter of the Rate Application of Mercury Casualty Company, Applicant, File Number PA-2009-00009, Expert Report filed March 20, 2012; Hearing Testimony April 2, 2012.

Appendix 2

Documents Considered

A. Court Documents

Notice of Motion and Motion for Class Certification; Memorandum of Points and Authorities in Support, dated November 18, 2022, USDC Northern District of California, Case No. 4:18-cv-06753-PJH.

Consolidated First Amended Complaint, dated March 25, 2020, USDC Northern District of California, 18-6753.

Deposition of Steven P. Feinstein, on Friday, January 20, 2023, commencing at 9:41 a.m., USDC Northern District of California, Case No. 4:18-cv-06753-PJH.

B. Data Sources

CCCAGG Methodology, Published by CC Data Limited trading as CryptoCompare, March 18, 2022.

CryptoCompare data ('Exchange Pair Menu - January 2023.csv,' 'XRP-BTC_history.csv,' 'XRP-ETH_history.csv,' 'XRP-USD_history.csv,' 'XRP-USDT_history.csv').

C. Web Sources

Binance, "Loan Data," available at <https://www.binance.com/en/loan/data>.

Bitpay, "Charities & Nonprofits," available at <https://bitpay.com/directory/nonprofits>.

Chong, Nick, Ethereum World News, "You Can Now Buy Coffee With XRP: Coinbase Card Expands," October 15, 2019, available at <https://en.ethereumworldnews.com/buy-coffee-xrp-coinbase-card-expands>.

Coinbase, "Coinbase pricing and fees disclosures," available at <https://help.coinbase.com/en/coinbase/trading-and-funding/pricing-and-fees/fees>.

Coinbase, "What is a crypto wallet?" available at <https://www.coinbase.com/learn/crypto-basics/what-is-a-crypto-wallet>.

Coinbase, "XRP," available at <https://www.coinbase.com/price/xrp>.

Coinbase, "XRP is now available on Coinbase," February 28, 2019, available at <https://www.coinbase.com/blog/xrp-is-now-available-on-coinbase>.

Coinfield, "BTC-XRP," available at <https://trade.coinfield.com/pro/trade/BTC-XRP> or <https://www.coinfield.com>.

CryptoCompare, “About Us,” available at <https://www.cryptocompare.com/about-us>.

Gemini, “Profiting From Price Differences Across Crypto Exchanges,” available at <https://www.gemini.com/cryptopedia/crypto-arbitrage-crypto-exchange-prices>.

Gemini, “The State of Centralized Exchanges,” available at <https://www.gemini.com/cryptopedia/centralized-exchanges-crypto>.

Kuhn, Daniel, CoinDesk, “SBI Holdings Subsidiary Will Pay a Shareholder Dividend in XRP,” August 29, 2019, available at <https://www.coindesk.com/markets/2019/08/29/sbi-holdings-subsidiary-will-pay-a-shareholder-dividend-in-xrp>.

Norland, Erik (CME Group), Reuters, “The Differences in Bitcoin and Ethereum Performance Drivers,” June 14, 2021, available at <https://www.reuters.com/article/sponsored/bitcoin-ethereum-performance>.

Tether, “What are Tether tokens and how do they work?” available at <https://tether.to/en/how-it-works>.

XRP Ledger, “Accounts,” available at <https://xrpl.org/accounts.html>.

XRP Ledger, “Decentralized Exchange,” available at <https://xrpl.org/decentralized-exchange.html>.

XRP Ledger, “Direct XRP Payments,” available at <https://xrpl.org/direct-xrp-payments.html>.

XRP Ledger, “XRP,” available at <https://xrpl.org/xrp.html>.

Exhibit 1.1

List of Exchanges (covered by CryptoCompare) offering Trading of XRP during the Analysis Period

	Exchange [a]	Number of Tradeable XRP Pairs [b]	Number of Pairs From XRP [c]	Number of Pairs To XRP [d]	XRP Trading using USD Offered [e]	XRP Trading using USDT Offered [f]	XRP Trading using BTC Offered [g]	XRP Trading using ETH Offered [h]
[1]	ABCC	2	2	0	0	0	1	1
[2]	ACX	1	1	0	0	0	0	0
[3]	Abucoints	1	1	0	0	0	1	0
[4]	BCEX	2	2	0	0	0	1	0
[5]	BTC38	2	2	0	0	0	1	0
[6]	BTCAlpha	3	3	0	1	1	1	0
[7]	BTCEXchange	1	1	0	0	0	0	0
[8]	BTCMarkets	2	2	0	0	0	1	0
[9]	BTCTurk	3	3	0	0	1	1	0
[10]	BTCXIndia	1	1	0	0	0	0	0
[11]	BTER	2	2	0	0	0	1	0
[12]	BXinth	1	1	0	0	0	0	0
[13]	Bgogo	2	2	0	0	1	1	0
[14]	Bibox	3	3	0	0	1	1	1
[15]	BigONE	2	2	0	0	1	1	0
[16]	Binance	18	16	2	0	1	1	1
[17]	BitBank	2	2	0	0	0	1	0
[18]	BitBay	7	7	0	1	1	1	1
[19]	BitFlip	5	5	0	1	0	1	0
[20]	BitMart	4	4	0	0	1	1	1
[21]	BitTrex	6	6	0	1	1	1	1
[22]	BitZ	2	2	0	0	1	0	0
[23]	BitexBook	6	6	0	1	1	1	1
[24]	Bitfinex	3	3	0	1	1	1	0
[25]	Bitforex	3	3	0	0	1	1	1
[26]	Bithumb	1	1	0	0	0	0	0
[27]	Bitkub	1	1	0	0	0	0	0
[28]	Bitlish	4	4	0	0	1	1	0
[29]	Bitpoint	1	1	0	0	0	0	0
[30]	Bitsane	11	10	1	1	1	1	1
[31]	Bitso	4	4	0	1	0	1	0
[32]	Bitstamp	7	7	0	1	1	1	0
[33]	Bluebelt	1	1	0	0	0	1	0
[34]	Brazilix	3	3	0	0	1	1	0
[35]	CBX	2	2	0	0	1	1	0
[36]	CCEDK	3	2	1	0	0	1	0
[37]	Catex	3	3	0	0	1	1	1
[38]	Cexio	5	5	0	1	1	1	0
[39]	Codex	2	2	0	0	1	1	0
[40]	CoinBene	3	3	0	0	1	1	0
[41]	CoinDeal	4	1	3	0	0	1	0
[42]	CoinEx	4	4	0	0	1	1	0
[43]	CoinFalcon	1	1	0	0	0	1	0
[44]	CoinHub	2	2	0	0	0	1	1
[45]	CoinJar	5	5	0	0	1	1	0
[46]	CoinPulse	3	3	0	0	0	1	1
[47]	CoinTiger	4	4	0	0	1	1	1
[48]	Coinbase	4	4	0	1	0	1	0
[49]	Coinmate	3	3	0	0	0	1	0
[50]	Coinone	1	1	0	0	0	0	0
[51]	Coinsbit	2	2	0	0	1	1	0
[52]	Cryptsy	104	2	102	1	0	1	0
[53]	DSX	6	6	0	1	1	1	1
[54]	DigiFinex	4	4	0	0	1	1	1
[55]	EXRATES	4	4	0	1	1	1	0
[56]	EXX	1	1	0	0	1	0	0
[57]	Exmo	9	9	0	1	1	1	1
[58]	FCoin	3	3	0	0	1	1	1
[59]	Gateio	4	4	0	1	1	1	0
[60]	HitBTC	8	8	0	0	1	1	1
[61]	HuobiPro	6	6	0	0	1	1	0
[62]	IDAX	2	2	0	0	1	0	1
[63]	IndependentReserve	4	4	0	1	0	0	0
[64]	InstantBitex	2	2	0	0	0	1	0

Exhibit 1.1

List of Exchanges (covered by CryptoCompare) offering Trading of XRP during the Analysis Period

Exchange [a]	Number of Tradeable XRP Pairs [b]	Number of Pairs From XRP [c]	Number of Pairs To XRP [d]	XRP Trading using USD Offered [e]	XRP Trading using USDT Offered [f]	XRP Trading using BTC Offered [g]	XRP Trading using ETH Offered [h]
[65]	Ironex	2	2	0	0	1	1
[66]	Jubi	1	1	0	0	0	0
[67]	Korbit	1	1	0	0	0	0
[68]	Kraken	9	9	0	1	1	1
[69]	Kucoin	8	8	0	0	1	1
[70]	Kuna	3	3	0	0	0	0
[71]	LAToken	3	3	0	0	1	1
[72]	LBank	5	5	0	0	1	1
[73]	LakeBTC	1	1	0	0	1	0
[74]	Liquid	9	8	1	0	1	0
[75]	LiveCoin	5	5	0	1	1	1
[76]	LocalBitcoins	1	0	1	0	1	0
[77]	Luno	4	4	0	0	1	0
[78]	MercadoBitcoin	1	1	0	0	0	0
[79]	NDAX	1	1	0	0	0	0
[80]	Nexchange	33	17	16	1	2	2
[81]	Nlexch	12	4	8	0	1	1
[82]	Nuex	11	1	10	0	0	0
[83]	OKCoin	3	3	0	1	0	1
[84]	OKEX	6	6	0	0	1	1
[85]	OpenLedger	6	6	0	0	1	1
[86]	Poloniex	6	6	0	1	1	0
[87]	Qryptos	1	1	0	0	1	0
[88]	Quoine	6	6	0	1	0	0
[89]	Remitano	11	11	0	0	0	0
[90]	RightBTC	5	5	0	1	1	1
[91]	StocksExchange	3	3	0	1	1	0
[92]	TheRockTrading	3	3	0	1	0	0
[93]	TradeSatoshi	5	5	0	0	1	1
[94]	Upbit	4	4	0	0	1	1
[95]	XS2	1	1	0	0	1	0
[96]	Yobit	6	6	0	1	0	1
[97]	ZB	5	5	0	0	1	0
[98]	ZBG	2	2	0	0	1	0
[99]	Zecoex	4	4	0	0	1	0
[100]	aax	3	3	0	0	1	1
[101]	aliexchange	2	2	0	0	1	0
[102]	alphaex	2	1	1	0	1	0
[103]	ataix	3	3	0	0	1	1
[104]	bcbitcoin	2	2	0	0	0	0
[105]	bequant	7	7	0	1	0	1
[106]	betconix	7	2	5	1	1	1
[107]	bhex	3	3	0	0	1	1
[108]	biki	2	2	0	0	1	0
[109]	binanceusa	4	4	0	1	1	0
[110]	bitFlyer	1	1	0	0	0	0
[111]	bitasset	3	3	0	0	1	0
[112]	bitbuy	2	2	0	0	0	0
[113]	bitci	3	3	0	0	1	0
[114]	bitcoincom	4	4	0	0	1	1
[115]	bithumbglobal	1	1	0	0	1	0
[116]	bitmax	3	3	0	0	1	1
[117]	bitpanda	3	3	0	0	0	0
[118]	bkex	4	4	0	0	1	1
[119]	blockchaincom	2	2	0	1	0	0
[120]	btse	21	21	0	1	1	1
[121]	bw	3	3	0	0	1	1
[122]	bybit	3	3	0	0	1	0
[123]	cobinhood	1	1	0	0	1	0
[124]	coinall	2	2	0	0	1	0
[125]	coinegg	3	3	0	0	1	1
[126]	coinfield	29	8	21	1	1	1
[127]	coinspro	2	2	0	0	0	0
[128]	coinsuper	3	3	0	1	0	1

Exhibit 1.1**List of Exchanges (covered by CryptoCompare) offering Trading of XRP during the Analysis Period**

	Exchange [a]	Number of Tradeable XRP Pairs [b]	Number of Pairs From XRP [c]	Number of Pairs To XRP [d]	XRP Trading using USD Offered [e]	XRP Trading using USDT Offered [f]	XRP Trading using BTC Offered [g]	XRP Trading using ETH Offered [h]
[129]	coinzest	1	1	0	0	0	0	0
[130]	coss	12	7	5	0	1	1	1
[131]	crex24	2	2	0	0	0	1	1
[132]	crosstower	1	1	0	0	0	1	0
[133]	cryptodotcom	4	4	0	0	1	1	0
[134]	currency	6	6	0	1	1	1	0
[135]	darbfinance	1	1	0	0	0	1	0
[136]	dcoin	2	2	0	0	1	1	0
[137]	decoin	2	2	0	0	1	1	0
[138]	equos	1	1	0	0	0	0	0
[139]	etoro	6	6	0	1	1	1	1
[140]	fatbtc	4	4	0	0	1	1	0
[141]	ftx	4	4	0	1	1	1	0
[142]	gopax	3	3	0	0	0	1	1
[143]	hbus	3	3	0	1	1	1	0
[144]	huobijapan	3	3	0	0	0	1	0
[145]	huobikorea	4	4	0	0	1	1	0
[146]	iCoinbay	2	2	0	0	1	1	0
[147]	idevex	1	1	0	1	0	0	0
[148]	indodax	2	2	0	0	0	1	0
[149]	lmax	4	4	0	1	0	0	0
[150]	nomonex	4	4	0	0	1	1	1
[151]	paribu	2	2	0	0	1	0	0
[152]	primexbt	2	2	0	1	0	1	0
[153]	probit	3	3	0	0	1	1	0
[154]	sistemkoin	6	6	0	1	1	1	1
[155]	smartrade	1	1	0	1	0	0	0
[156]	timex	1	1	0	0	1	0	0
[157]	tokensnet	3	3	0	0	1	1	0
[158]	tokok	3	3	0	0	1	1	1
[159]	valr	1	1	0	0	0	0	0
[160]	xbtpro	2	2	0	0	0	1	1
[161]	xcoex	1	1	0	1	0	0	0
[162]	xtpub	6	6	0	0	1	1	1

Notes and Sources:

'Exchange Pair Menu - January 2023 csv'

List of Unique Exchanges covered by CryptoCompare with one or more XRP trading pairs offered Limited to trading pairs with at least one date between Start_Date and End_Date contained within the Analysis Period

[a] Name of exchange, as provided by CryptoCompare

[b] =[c]+[d]

[c] Number of trading pairs covered by CryptoCompare with XRP as the base currency on the exchange

[d] Number of trading pairs covered by CryptoCompare with XRP as the quote currency on the exchange

[e] =1 if the XRP-USD (or USD-XRP) pair is offered on the exchange and covered by CryptoCompare, as provided by CryptoCompare =2 if both XRP-USD and USD-XRP are offered on the exchange

[f] =1 if the XRP-USDT (or USDT-XRP) pair is offered on the exchange and covered by CryptoCompare, as provided by CryptoCompare =2 if both XRP-USDT and USDT-XRP are offered on the exchange

[g] =1 if the XRP-BTC (or BTC-XRP) pair is offered on the exchange and covered by CryptoCompare, as provided by CryptoCompare =2 if both XRP-BTC and BTC-XRP are offered on the exchange

[h] =1 if the XRP-ETH (or ETH-XRP) pair is offered on the exchange and covered by CryptoCompare, as provided by CryptoCompare =2 if both XRP-ETH and ETH-XRP are offered on the exchange

Exhibit 1.2

**Unique Currencies that can be used to Trade XRP (covered by
CryptoCompare) during the Analysis Period**

Currency Supported for Trading XRP

[a]

[1]	FIRO
[2]	TRX
[3]	ICN
[4]	OBITS
[5]	DOGE
[6]	SHND
[7]	XP
[8]	42
[9]	CRAIG
[10]	FIBRE
[11]	SYS
[12]	NAV
[13]	DT
[14]	GLYPH
[15]	DRKC
[16]	FLT
[17]	EXE
[18]	CLR
[19]	OSC
[20]	CANN
[21]	MZC
[22]	RZR
[23]	MEC
[24]	CLOAK
[25]	ZEIT
[26]	BTMK
[27]	RDD
[28]	CRYPT
[29]	EMC2
[30]	DGB
[31]	ARG
[32]	POT
[33]	XST
[34]	NXT
[35]	PPC
[36]	XXX
[37]	NMC
[38]	IXC
[39]	CAP
[40]	FRK
[41]	XC
[42]	TRC
[43]	CKC
[44]	BTCD
[45]	DGC
[46]	QRK
[47]	NET

Exhibit 1.2

**Unique Currencies that can be used to Trade XRP (covered by
CryptoCompare) during the Analysis Period**

Currency Supported for Trading XRP	
[a]	
<hr/>	
[48]	YAC
[49]	WDC
[50]	JUDGE
[51]	HAL
[52]	MRY
[53]	VRC
[54]	GB
[55]	AERO
[56]	MAX
[57]	KEY
[58]	LTC
[59]	SILK
[60]	BTB
[61]	NMB
[62]	LTB
[63]	LTCD
[64]	NVC
[65]	FTC
[66]	LXC
[67]	IOC
[68]	BLU
[69]	CNC
[70]	LKY
[71]	CRACK
[72]	ICB
[73]	SHADE
[74]	XPM
[75]	XCR
[76]	SXC
[77]	SFR
[78]	SRC
[79]	AC
[80]	PHS
[81]	SDC
[82]	XBOT
[83]	OPAL
[84]	UTC
[85]	USDE
[86]	DASH
[87]	LEAF
[88]	IFC
[89]	HVC
[90]	FFC
[91]	PXC
[92]	FRC
[93]	TIPS
[94]	URO

Exhibit 1.2

**Unique Currencies that can be used to Trade XRP (covered by
CryptoCompare) during the Analysis Period**

Currency Supported for Trading XRP	
[a]	
<hr/>	
[95]	ZET
[96]	BLK
[97]	VTC
[98]	NAUT
[99]	DEM
[100]	TEK
[101]	HTML5
[102]	HBN
[103]	TES
[104]	LSD
[105]	VIA
[106]	FLAP
[107]	UNO
[108]	HUC
[109]	SOLO
[110]	BTC
[111]	XMR
[112]	ZEC
[113]	BCH
[114]	OMG
[115]	XVG
[116]	BNB
[117]	NANO
[118]	ETH
[119]	BNT
[120]	EOS
[121]	USDT
[122]	XLM
[123]	CSC
[124]	LYNX
[125]	XVP
[126]	XMY
[127]	404
[128]	JMC
[129]	MERCURY
[130]	SPDRGOLD
[131]	DARCRUS
[132]	ZIL
[133]	WAVES
[134]	GVT
[135]	XDC
[136]	LINK
[137]	CVC
[138]	BAT
[139]	GLM
[140]	ZRX
[141]	CFC

Exhibit 1.2

**Unique Currencies that can be used to Trade XRP (covered by
CryptoCompare) during the Analysis Period**

Currency Supported for Trading XRP	
[a]	
<hr/>	
[142]	REP
[143]	LOOM
[144]	SGB
[145]	BTG
[146]	ARK
[147]	LSK
[148]	AUD
[149]	CKUSD
[150]	CNY
[151]	USD
[152]	EUR
[153]	TRY
[154]	INR
[155]	THB
[156]	BKRW
[157]	GBP
[158]	NGN
[159]	USDC
[160]	TUSD
[161]	RUB
[162]	BUSD
[163]	BRL
[164]	BIDR
[165]	JPY
[166]	PLN
[167]	UAH
[168]	BMX
[169]	BZ
[170]	KRW
[171]	COP
[172]	MXN
[173]	PAX
[174]	USDP
[175]	CPEX
[176]	CZK
[177]	EURS
[178]	DFXT
[179]	CNYX
[180]	HITBTC
[181]	DAI
[182]	HT
[183]	USDD
[184]	HUSD
[185]	NZD
[186]	SGD
[187]	CAD
[188]	KCS

Exhibit 1.2**Unique Currencies that can be used to Trade XRP (covered by CryptoCompare) during the Analysis Period**

Currency Supported for Trading XRP	
[a]	
<hr/>	
[189]	NEO
[190]	ANCT
[191]	IDR
[192]	QASH
[193]	RUR
[194]	ZAR
[195]	MYR
[196]	KNC
[197]	OKB
[198]	USDK
[199]	BITCNY
[200]	BTS
[201]	BITUSD
[202]	PKR
[203]	TZS
[204]	KES
[205]	UGX
[206]	VND
[207]	ETP
[208]	ZB
[209]	QC
[210]	TWD
[211]	CNYT
[212]	CHFT
[213]	CHF
[214]	AED
[215]	HKD
[216]	PHP
[217]	COS
[218]	GUSD
[219]	CRO
[220]	BYN
[221]	USDEX
[222]	XTUSD
[223]	XT

Notes and Sources:

'Exchange Pair Menu - January 2023.csv'

List of unique currencies that can be used to trade XRP across the 162 exchanges covered by CryptoCompare that listed XRP for trade. Limited to currencies in trading pairs with at least one date between Start_Date and End_Date contained within the Analysis Period.

[a] Currency supported for trading XRP, as provided by CryptoCompare.

Exhibit 1.3**Number of Exchanges supporting Trading of XRP by Currency (covered by CryptoCompare) during the Analysis Period**

	Currency Supported for Trading XRP	Number Of Exchanges Supporting Trading between [a] and XRP	as %
	[a]	[b]	[c]
[1]	Any Currency	162	
[2]	BTC	127	78%
[3]	USDT	93	57%
[4]	ETH	57	35%
[5]	USD	45	28%
[6]	EUR	27	17%
[7]	USDC	23	14%
[8]	GBP	15	9%
[9]	JPY	11	7%
[10]	LTC	10	6%
[11]	BCH	8	5%
[12]	KRW	8	5%
[13]	DOGE	7	4%
[14]	AUD	7	4%
[15]	DASH	6	4%
[16]	TRY	6	4%
[17]	TUSD	6	4%
[18]	RUB	6	4%
[19]	TRX	5	3%
[20]	SGD	5	3%
[21]	CAD	5	3%
[22]	BNB	4	2%
[23]	EOS	4	2%
[24]	CNY	4	2%
[25]	INR	4	2%
[26]	BRL	4	2%
[27]	UAH	4	2%
[28]	EURS	4	2%
[29]	DAI	4	2%
[30]	IDR	4	2%
[31]	ZEC	3	2%
[32]	OMG	3	2%
[33]	XLM	3	2%
[34]	NGN	3	2%
[35]	BUSD	3	2%
[36]	PAX	3	2%
[37]	HT	3	2%
[38]	ZAR	3	2%
[39]	MYR	3	2%
[40]	DGB	2	1%
[41]	UNO	2	1%
[42]	SOLO	2	1%
[43]	XMR	2	1%
[44]	XVG	2	1%
[45]	NANO	2	1%
[46]	BNT	2	1%
[47]	CSC	2	1%

Exhibit 1.3**Number of Exchanges supporting Trading of XRP by Currency (covered by CryptoCompare) during the Analysis Period**

	Currency Supported for Trading XRP	Number Of Exchanges Supporting Trading between [a] and XRP	as %
	[a]	[b]	[c]
[48]	ZIL	2	1%
[49]	WAVES	2	1%
[50]	THB	2	1%
[51]	USDP	2	1%
[52]	USDD	2	1%
[53]	QASH	2	1%
[54]	RUR	2	1%
[55]	QC	2	1%
[56]	CHF	2	1%
[57]	AED	2	1%
[58]	FIRO	1	1%
[59]	ICN	1	1%
[60]	OBITS	1	1%
[61]	SHND	1	1%
[62]	XP	1	1%
[63]	42	1	1%
[64]	CRAIG	1	1%
[65]	FIBRE	1	1%
[66]	SYS	1	1%
[67]	NAV	1	1%
[68]	DT	1	1%
[69]	GLYPH	1	1%
[70]	DRKC	1	1%
[71]	FLT	1	1%
[72]	EXE	1	1%
[73]	CLR	1	1%
[74]	OSC	1	1%
[75]	CANN	1	1%
[76]	MZC	1	1%
[77]	RZR	1	1%
[78]	MEC	1	1%
[79]	CLOAK	1	1%
[80]	ZEIT	1	1%
[81]	BTMK	1	1%
[82]	RDD	1	1%
[83]	CRYPT	1	1%
[84]	EMC2	1	1%
[85]	ARG	1	1%
[86]	POT	1	1%
[87]	XST	1	1%
[88]	NXT	1	1%
[89]	PPC	1	1%
[90]	XXX	1	1%
[91]	NMC	1	1%
[92]	IXC	1	1%
[93]	CAP	1	1%
[94]	FRK	1	1%

Exhibit 1.3**Number of Exchanges supporting Trading of XRP by Currency (covered by CryptoCompare) during the Analysis Period**

Currency Supported for Trading XRP		Number Of Exchanges Supporting Trading between [a] and XRP	as %
	[a]	[b]	[c]
[95]	XC	1	1%
[96]	TRC	1	1%
[97]	CKC	1	1%
[98]	BTCD	1	1%
[99]	DGC	1	1%
[100]	QRK	1	1%
[101]	NET	1	1%
[102]	YAC	1	1%
[103]	WDC	1	1%
[104]	JUDGE	1	1%
[105]	HAL	1	1%
[106]	MRY	1	1%
[107]	VRC	1	1%
[108]	GB	1	1%
[109]	AERO	1	1%
[110]	MAX	1	1%
[111]	KEY	1	1%
[112]	SILK	1	1%
[113]	BTB	1	1%
[114]	NMB	1	1%
[115]	LTB	1	1%
[116]	LTCD	1	1%
[117]	NVC	1	1%
[118]	FTC	1	1%
[119]	LXC	1	1%
[120]	IOC	1	1%
[121]	BLU	1	1%
[122]	CNC	1	1%
[123]	LKY	1	1%
[124]	CRACK	1	1%
[125]	ICB	1	1%
[126]	SHADE	1	1%
[127]	XPM	1	1%
[128]	XCR	1	1%
[129]	SXC	1	1%
[130]	SFR	1	1%
[131]	SRC	1	1%
[132]	AC	1	1%
[133]	PHS	1	1%
[134]	SDC	1	1%
[135]	XBOT	1	1%
[136]	OPAL	1	1%
[137]	UTC	1	1%
[138]	USDE	1	1%
[139]	LEAF	1	1%
[140]	IFC	1	1%
[141]	HVC	1	1%

Exhibit 1.3**Number of Exchanges supporting Trading of XRP by Currency (covered by CryptoCompare) during the Analysis Period**

Currency Supported for Trading XRP		Number Of Exchanges Supporting Trading between [a] and XRP	as %
[a]		[b]	[c]
[142]	FFC	1	1%
[143]	PXC	1	1%
[144]	FRC	1	1%
[145]	TIPS	1	1%
[146]	URO	1	1%
[147]	ZET	1	1%
[148]	BLK	1	1%
[149]	VTC	1	1%
[150]	NAUT	1	1%
[151]	DEM	1	1%
[152]	TEK	1	1%
[153]	HTML5	1	1%
[154]	HBN	1	1%
[155]	TES	1	1%
[156]	LSD	1	1%
[157]	VIA	1	1%
[158]	FLAP	1	1%
[159]	HUC	1	1%
[160]	LYNX	1	1%
[161]	XVP	1	1%
[162]	XMY	1	1%
[163]	404	1	1%
[164]	JMC	1	1%
[165]	MERCURY	1	1%
[166]	SPDRGOLD	1	1%
[167]	DARCRUS	1	1%
[168]	GVT	1	1%
[169]	XDC	1	1%
[170]	LINK	1	1%
[171]	CVC	1	1%
[172]	BAT	1	1%
[173]	GLM	1	1%
[174]	ZRX	1	1%
[175]	CFC	1	1%
[176]	REP	1	1%
[177]	LOOM	1	1%
[178]	SGB	1	1%
[179]	BTG	1	1%
[180]	ARK	1	1%
[181]	LSK	1	1%
[182]	CKUSD	1	1%
[183]	BKRW	1	1%
[184]	BIDR	1	1%
[185]	PLN	1	1%
[186]	BMX	1	1%
[187]	BZ	1	1%
[188]	COP	1	1%

Exhibit 1.3**Number of Exchanges supporting Trading of XRP by Currency (covered by CryptoCompare) during the Analysis Period**

Currency Supported for Trading XRP		Number Of Exchanges Supporting Trading between [a] and XRP	as %
[a]		[b]	[c]
[189]	MXN	1	1%
[190]	CPEX	1	1%
[191]	CZK	1	1%
[192]	DFXT	1	1%
[193]	CNYX	1	1%
[194]	HITBTC	1	1%
[195]	HUSD	1	1%
[196]	NZD	1	1%
[197]	KCS	1	1%
[198]	NEO	1	1%
[199]	ANCT	1	1%
[200]	KNC	1	1%
[201]	OKB	1	1%
[202]	USDK	1	1%
[203]	BITCNY	1	1%
[204]	BTS	1	1%
[205]	BITUSD	1	1%
[206]	PKR	1	1%
[207]	TZS	1	1%
[208]	KES	1	1%
[209]	UGX	1	1%
[210]	VND	1	1%
[211]	ETP	1	1%
[212]	ZB	1	1%
[213]	TWD	1	1%
[214]	CNYT	1	1%
[215]	CHFT	1	1%
[216]	HKD	1	1%
[217]	PHP	1	1%
[218]	COS	1	1%
[219]	GUSD	1	1%
[220]	CRO	1	1%
[221]	BYN	1	1%
[222]	USDEX	1	1%
[223]	XTUSD	1	1%
[224]	XT	1	1%

Notes and Sources:

Exhibit 1.3. 'Exchange Pair Menu - January 2023.csv'.

[a] Exhibit 1.3. Currency supported for trading XRP, as provided by CryptoCompare.

[b] Exchange Pair Menu - January 2023.csv'. Number of exchanges supporting trading between XRP and currency in [a].

[1][b] Total number of exchanges offering trading of XRP.

[c] $=([b]/[b][1])$.

Exhibit 2.1

Percentage of Purchase-Date/Sale-Date Combinations with Loss (Red shading shows percentages greater than 90%) - buy avg-sell avg

	Purchase Period		Sell XRP within X Days of Purchase																															
	Start	End	Within 1D				Within 3D				Within 7D				Within 30D				Within 90D				Within 180D				Within 360D				Through 11/18/22			
			USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	USD	BTC	ETH	USDT
			[a]	[b]	[c]	[d]	[e]	[f]	[g]	[h]	[i]	[j]	[k]	[l]	[m]	[n]	[o]	[p]	[q]	[r]	[s]	[t]	[u]	[v]	[w]	[x]	[y]	[z]	[aa]	[ab]	[ac]	[ad]	[ae]	[af]
[1]	5/3/2017	6/30/2017	36%	46%	46%	46%	46%	51%	49%	46%	50%	52%	49%	47%	59%	66%	60%	57%	73%	83%	79%	70%	74%	90%	86%	70%	39%	83%	66%	37%	24%	96%	68%	24%
[2]	7/1/2017	9/30/2017	46%	61%	53%	52%	50%	62%	54%	52%	52%	66%	55%	54%	49%	72%	54%	49%	35%	84%	60%	36%	21%	63%	46%	21%	10%	39%	23%	11%	7%	77%	45%	8%
[3]	10/1/2017	12/31/2017	46%	49%	58%	47%	41%	51%	57%	41%	37%	53%	52%	36%	30%	56%	55%	31%	21%	34%	38%	23%	19%	19%	25%	21%	20%	15%	17%	20%	27%	63%	48%	28%
[4]	1/1/2018	3/31/2018	61%	66%	57%	62%	64%	70%	58%	64%	70%	74%	57%	70%	79%	81%	48%	79%	81%	76%	54%	81%	90%	86%	66%	90%	95%	81%	41%	95%	89%	96%	68%	90%
[5]	4/1/2018	6/30/2018	53%	54%	62%	54%	51%	57%	58%	51%	54%	60%	57%	54%	67%	63%	66%	67%	81%	77%	68%	81%	87%	78%	46%	87%	93%	65%	23%	93%	77%	92%	64%	77%
[6]	7/1/2018	9/30/2018	55%	60%	42%	55%	58%	58%	45%	58%	59%	64%	43%	59%	63%	69%	34%	64%	46%	41%	14%	46%	52%	24%	9%	52%	60%	39%	12%	60%	52%	86%	65%	52%
[7]	10/1/2018	12/31/2018	57%	49%	50%	59%	58%	49%	50%	59%	61%	47%	46%	62%	62%	39%	40%	63%	79%	41%	47%	79%	79%	53%	60%	80%	85%	76%	80%	85%	58%	94%	95%	59%
[8]	1/1/2019	3/31/2019	54%	70%	57%	57%	58%	72%	56%	57%	58%	78%	55%	57%	54%	92%	65%	54%	47%	97%	86%	46%	40%	99%	93%	39%	69%	99%	97%	68%	42%	100%	99%	42%
[9]	4/1/2019	6/30/2019	51%	69%	65%	53%	50%	71%	65%	51%	51%	74%	68%	50%	51%	83%	80%	51%	52%	94%	90%	52%	74%	97%	88%	74%	87%	98%	93%	87%	49%	100%	98%	49%
[10]	7/1/2019	9/30/2019	58%	50%	50%	58%	57%	50%	53%	58%	59%	48%	52%	60%	69%	51%	44%	70%	70%	39%	29%	71%	80%	43%	34%	80%	86%	64%	65%	86%	37%	85%	89%	37%
[11]	10/1/2019	12/31/2019	49%	43%	52%	50%	55%	46%	54%	56%	56%	51%	55%	56%	61%	68%	59%	61%	62%	79%	76%	61%	71%	87%	87%	71%	65%	92%	94%	65%	24%	96%	98%	23%
[12]	1/1/2020	3/31/2020	44%	52%	62%	45%	43%	54%	62%	43%	41%	56%	64%	41%	41%	51%	67%	41%	57%	62%	77%	58%	61%	79%	89%	61%	40%	84%	94%	40%	14%	92%	98%	14%
[13]	4/1/2020	6/30/2020	49%	59%	66%	48%	54%	64%	71%	53%	55%	70%	75%	55%	51%	77%	83%	51%	40%	62%	93%	40%	20%	60%	93%	20%	10%	66%	94%	10%	4%	76%	98%	4%
[14]	7/1/2020	9/30/2020	48%	46%	52%	48%	47%	49%	53%	46%	45%	52%	52%	45%	45%	58%	64%	45%	41%	56%	76%	41%	28%	65%	75%	28%	14%	64%	87%	14%	6%	77%	94%	6%
[15]	10/1/2020	12/31/2020	52%	67%	61%	54%	51%	70%	62%	51%	49%	73%	65%	49%	48%	72%	71%	48%	43%	74%	75%	43%	26%	74%	83%	26%	14%	59%	91%	14%	16%	65%	95%	16%
[16]	1/1/2021	3/31/2021	38%	52%	58%	40%	42%	54%	56%	43%	41%	49%	53%	41%	28%	39%	39%	28%	11%	21%	19%	11%	6%	11%	17%	6%	3%	5%	36%	3%	20%	3%	46%	20%
[17]	4/1/2021	6/30/2021	54%	45%	55%	56%	54%	48%	57%	55%	54%	50%	58%	55%	67%	57%	78%	67%	68%	64%	81%	68%	58%	71%	88%	58%	70%	80%	94%	70%	80%	80%	93%	80%
[18]	7/1/2021	9/30/2021	48%	50%	57%	49%	47%	54%	59%	47%	49%	59%	61%	50%	42%	65%	63%	43%	38%	61%	62%	38%	48%	74%	80%	48%	63%	81%	87%	63%	71%	76%	81%	71%
[19]	10/1/2021	12/31/2021	51%	48%	60%	50%	52%	53%	63%	52%	55%	56%	64%	55%	62%	57%	64%	62%	83%	58%	61%	84%	90%	58%	56%	90%	95%	64%	53%	95%	95%	62%	52%	95%
[20]	1/1/2022	3/31/2022	54%	49%	60%	54%	50%	55%	58%	50%	50%	57%	54%	50%	49%	56%	49%	49%	57%	57%	56%	57%	78%	75%	60%	78%	85%	60%	51%	85%	85%	60%	51%	85%
[21]	4/1/2022	6/30/2022	65%	55%	53%	65%	67%	58%	47%	67%	70%	59%	46%	69%	82%	62%	51%	82%	82%	52%	47%	82%	73%	40%	41%	73%	75%	37%	38%	75%	75%	37%	38%	75%
[22]	7/1/2022	9/30/2022	45%	40%	53%	45%	45%	45%	55%	44%	43%	45%	56%	43%	36%	33%	54%	36%	25%	19%	39%	25%	23%	16%	34%	22%	23%	16%	34%	22%	23%	16%	34%	22%
[23]	10/1/2022	11/17/2022	58%	56%	54%	58%	53%	55%	55%	55%	55%	60%	60%	56%	72%	77%	75%	72%	74%	80%	78%	75%	74%	80%	78%	75%	74%	80%	78%	75%	74%	80%	78%	75%
[24]	All Purchase Dates		51%	54%	56%	52%	52%	56%	56%	52%	53%	59%	56%	53%	55%	62%	59%	55%	54%	60%	60%	54%	55%	63%	62%	55%	55%	64%	64%	55%	41%	82%	76%	42%

Notes and Sources:

Backup Exhibits 2A-2D, produced electronically

Earliest Purchase-Date: 5/3/2017 (start of class period)

Using average of reported high and low prices for purchase and sale

[a] Start of Purchase Period

[b] End of Purchase Period

[c]-[f] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 1 day from the Purchase-Date for the listed XRP Trading Pair

[g]-[j] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 3 days from the Purchase-Date for the listed XRP Trading Pair

[k]-[n] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 7 days from the Purchase-Date for the listed XRP Trading Pair

[o]-[r] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 30 days from the Purchase-Date for the listed XRP Trading Pair

[s]-[v] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 90 days from the Purchase-Date for the listed XRP Trading Pair

[w]-[z] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 180 days from the Purchase-Date for the listed XRP Trading Pair

[aa]-[ad] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 360 days from the Purchase-Date for the listed XRP Trading Pair

[ae]-[ah] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date on or before 11/18/2022 for the listed XRP Trading Pair

Exhibit 2.2

Percentage of Purchase-Date/Sale-Date Combinations with Gain (Zero or Positive Profit) (Red shading shows percentages lesser than or equal to 10%) - buy avg-sell avg

	Purchase Period		Sell XRP within X Days of Purchase																															
	Start	End	Within 1D				Within 3D				Within 7D				Within 30D				Within 90D				Within 180D				Within 360D				Through 11/18/22			
			USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	USD	BTC	ETH	USDT
			[a]	[b]	[c]	[d]	[e]	[f]	[g]	[h]	[i]	[j]	[k]	[l]	[m]	[n]	[o]	[p]	[q]	[r]	[s]	[t]	[u]	[v]	[w]	[x]	[y]	[z]	[aa]	[ab]	[ac]	[ad]	[ae]	[af]
[1]	5/3/2017	6/30/2017	64%	54%	54%	54%	54%	49%	51%	54%	50%	48%	51%	53%	41%	34%	40%	43%	27%	17%	21%	30%	26%	10%	14%	30%	61%	17%	34%	63%	76%	4%	32%	76%
[2]	7/1/2017	9/30/2017	54%	39%	47%	48%	50%	38%	46%	48%	48%	34%	45%	46%	51%	28%	46%	51%	65%	16%	40%	64%	79%	37%	54%	79%	90%	61%	77%	89%	93%	23%	55%	92%
[3]	10/1/2017	12/31/2017	54%	51%	42%	53%	59%	49%	43%	59%	63%	47%	48%	64%	70%	44%	45%	69%	79%	66%	62%	77%	81%	81%	75%	79%	80%	85%	83%	80%	73%	37%	52%	72%
[4]	1/1/2018	3/31/2018	39%	34%	43%	38%	36%	30%	42%	36%	30%	26%	43%	30%	21%	19%	52%	21%	19%	24%	46%	19%	10%	14%	34%	10%	5%	19%	59%	5%	11%	4%	32%	10%
[5]	4/1/2018	6/30/2018	47%	46%	38%	46%	49%	43%	42%	49%	46%	40%	43%	46%	33%	37%	34%	33%	19%	23%	32%	19%	13%	22%	54%	13%	7%	35%	77%	7%	23%	8%	36%	23%
[6]	7/1/2018	9/30/2018	45%	40%	58%	45%	42%	42%	55%	42%	41%	36%	57%	41%	37%	31%	66%	36%	54%	59%	86%	54%	48%	76%	91%	48%	40%	61%	88%	40%	48%	14%	35%	48%
[7]	10/1/2018	12/31/2018	43%	51%	50%	41%	42%	51%	50%	41%	39%	53%	54%	38%	38%	61%	60%	37%	21%	59%	53%	21%	21%	47%	40%	20%	15%	24%	20%	15%	42%	6%	5%	41%
[8]	1/1/2019	3/31/2019	46%	30%	43%	43%	42%	28%	44%	43%	42%	22%	45%	43%	46%	8%	35%	46%	53%	3%	14%	54%	60%	1%	7%	61%	31%	1%	3%	32%	58%	0%	1%	58%
[9]	4/1/2019	6/30/2019	49%	31%	35%	47%	50%	29%	35%	49%	49%	26%	32%	50%	49%	17%	20%	49%	48%	6%	10%	48%	26%	3%	12%	26%	13%	2%	7%	13%	51%	0%	2%	51%
[10]	7/1/2019	9/30/2019	42%	50%	50%	42%	43%	50%	47%	42%	41%	52%	48%	40%	31%	49%	56%	30%	30%	61%	71%	29%	20%	57%	66%	20%	14%	36%	35%	14%	63%	15%	11%	63%
[11]	10/1/2019	12/31/2019	51%	57%	48%	50%	45%	54%	46%	44%	44%	49%	45%	44%	39%	32%	41%	39%	38%	21%	24%	39%	29%	13%	13%	29%	35%	8%	6%	35%	76%	4%	2%	77%
[12]	1/1/2020	3/31/2020	56%	48%	38%	55%	57%	46%	38%	57%	59%	44%	36%	59%	59%	49%	33%	59%	43%	38%	23%	42%	39%	21%	11%	39%	60%	16%	6%	60%	86%	8%	2%	86%
[13]	4/1/2020	6/30/2020	51%	41%	34%	52%	46%	36%	29%	47%	45%	30%	25%	45%	49%	23%	17%	49%	60%	38%	7%	60%	80%	40%	7%	80%	90%	34%	6%	90%	96%	24%	2%	96%
[14]	7/1/2020	9/30/2020	52%	54%	48%	52%	53%	51%	47%	54%	55%	48%	48%	55%	55%	42%	36%	55%	59%	44%	24%	59%	72%	35%	25%	72%	86%	36%	13%	86%	94%	23%	6%	94%
[15]	10/1/2020	12/31/2020	48%	33%	39%	46%	49%	30%	38%	49%	51%	27%	35%	51%	52%	28%	29%	52%	57%	26%	25%	57%	74%	26%	17%	74%	86%	41%	9%	86%	84%	35%	5%	84%
[16]	1/1/2021	3/31/2021	62%	48%	42%	60%	58%	46%	44%	57%	59%	51%	47%	59%	72%	61%	61%	72%	89%	79%	81%	89%	94%	89%	83%	94%	97%	95%	64%	97%	80%	97%	54%	80%
[17]	4/1/2021	6/30/2021	46%	55%	45%	44%	46%	52%	43%	45%	46%	50%	42%	45%	33%	43%	22%	33%	32%	36%	19%	32%	42%	29%	12%	42%	30%	20%	6%	30%	20%	20%	7%	20%
[18]	7/1/2021	9/30/2021	52%	50%	43%	51%	53%	46%	41%	53%	51%	41%	39%	50%	58%	35%	37%	57%	62%	39%	38%	62%	52%	26%	20%	52%	37%	19%	13%	37%	29%	24%	19%	29%
[19]	10/1/2021	12/31/2021	49%	52%	40%	50%	48%	47%	37%	48%	45%	44%	36%	45%	38%	43%	36%	38%	17%	42%	39%	16%	10%	42%	44%	10%	5%	36%	47%	5%	5%	38%	48%	5%
[20]	1/1/2022	3/31/2022	46%	51%	40%	46%	50%	45%	42%	50%	50%	43%	46%	50%	51%	44%	51%	51%	43%	43%	44%	43%	22%	25%	40%	22%	15%	40%	49%	15%	15%	40%	49%	15%
[21]	4/1/2022	6/30/2022	35%	45%	47%	35%	33%	42%	53%	33%	30%	41%	54%	31%	18%	38%	49%	18%	18%	48%	53%	18%	27%	60%	59%	27%	25%	63%	62%	25%	25%	63%	62%	25%
[22]	7/1/2022	9/30/2022	55%	60%	47%	55%	55%	55%	45%	56%	57%	55%	44%	57%	64%	67%	46%	64%	75%	81%	61%	75%	77%	84%	66%	78%	77%	84%	66%	78%	77%	84%	66%	78%
[23]	10/1/2022	11/17/2022	42%	44%	46%	42%	47%	45%	45%	45%	45%	40%	40%	44%	28%	23%	25%	28%	26%	20%	22%	25%	26%	20%	22%	25%	26%	20%	22%	25%	26%	20%	22%	25%
[24]	All Purchase Dates		49%	46%	44%	48%	48%	44%	44%	48%	47%	41%	44%	47%	45%	38%	41%	45%	46%	40%	40%	46%	45%	37%	38%	45%	45%	36%	36%	45%	59%	18%	24%	58%

Notes and Sources:

Backup Exhibits 2A-2D, produced electronically

Earliest Purchase-Date: 5/3/2017 (start of class period)

Using average of reported high and low prices for purchase and sale

[a] Start of Purchase Period

[b] End of Purchase Period

[c]-[f] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 1 day from the Purchase-Date for the listed XRP Trading Pair

[g]-[j] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 3 days from the Purchase-Date for the listed XRP Trading Pair

[k]-[n] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 7 days from the Purchase-Date for the listed XRP Trading Pair

[o]-[r] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 30 days from the Purchase-Date for the listed XRP Trading Pair

[s]-[v] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 90 days from the Purchase-Date for the listed XRP Trading Pair

[w]-[z] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 180 days from the Purchase-Date for the listed XRP Trading Pair

[aa]-[ad] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 360 days from the Purchase-Date for the listed XRP Trading Pair

[ae]-[ah] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date on or before 11/18/2022 for the listed XRP Trading Pair

Exhibit 2.3

Percentage of Purchase-Date/Sale-Date Combinations with Loss (Red shading shows percentages greater than 90%) - buy high-sell low

	Purchase Period		Sell XRP within X Days of Purchase																																			
	Start	End	Within 1D				Within 3D				Within 7D				Within 30D				Within 90D				Within 180D				Within 360D				Through 11/18/22							
			USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	USD	BTC	ETH	USDT
	[a]	[b]	[c]	[d]	[e]	[f]	[g]	[h]	[i]	[j]	[k]	[l]	[m]	[n]	[o]	[p]	[q]	[r]	[s]	[t]	[u]	[v]	[w]	[x]	[y]	[z]	[aa]	[ab]	[ac]	[ad]	[ae]	[af]	[ag]	[ah]				
[1]	5/3/2017	6/30/2017	100%	100%	93%	83%	89%	90%	81%	76%	79%	82%	75%	71%	77%	86%	75%	73%	83%	91%	87%	81%	84%	95%	92%	82%	45%	89%	73%	44%	32%	97%	72%	31%				
[2]	7/1/2017	9/30/2017	100%	100%	100%	85%	93%	97%	96%	81%	85%	93%	88%	75%	68%	88%	75%	63%	53%	92%	76%	51%	32%	68%	56%	32%	16%	45%	29%	16%	11%	80%	48%	11%				
[3]	10/1/2017	12/31/2017	100%	100%	100%	98%	88%	89%	89%	88%	75%	80%	80%	75%	49%	67%	71%	51%	32%	39%	47%	35%	25%	23%	31%	27%	24%	19%	21%	25%	31%	66%	51%	32%				
[4]	1/1/2018	3/31/2018	100%	100%	100%	100%	94%	96%	94%	95%	93%	94%	85%	93%	90%	91%	64%	90%	90%	84%	65%	90%	95%	92%	77%	95%	97%	87%	47%	97%	92%	97%	71%	92%				
[5]	4/1/2018	6/30/2018	100%	100%	100%	100%	94%	95%	94%	94%	85%	87%	87%	85%	80%	77%	81%	80%	87%	84%	79%	87%	92%	86%	52%	92%	96%	74%	26%	96%	80%	94%	66%	80%				
[6]	7/1/2018	9/30/2018	100%	100%	100%	100%	92%	92%	90%	92%	86%	86%	80%	87%	77%	78%	51%	77%	55%	48%	22%	54%	63%	30%	15%	63%	69%	44%	15%	69%	58%	87%	68%	58%				
[7]	10/1/2018	12/31/2018	100%	100%	100%	100%	93%	91%	92%	94%	88%	81%	82%	88%	78%	58%	59%	79%	89%	52%	55%	89%	88%	61%	68%	88%	91%	81%	84%	90%	63%	95%	96%	63%				
[8]	1/1/2019	3/31/2019	100%	100%	100%	100%	96%	99%	93%	96%	89%	97%	87%	89%	76%	99%	80%	77%	66%	100%	92%	65%	56%	100%	96%	55%	78%	100%	98%	77%	47%	100%	99%	46%				
[9]	4/1/2019	6/30/2019	100%	100%	100%	100%	89%	96%	97%	90%	82%	93%	94%	82%	72%	93%	93%	71%	64%	97%	96%	63%	81%	99%	94%	81%	90%	99%	97%	90%	53%	100%	99%	52%				
[10]	7/1/2019	9/30/2019	100%	100%	100%	100%	94%	91%	95%	94%	92%	83%	88%	92%	86%	67%	70%	86%	82%	49%	54%	81%	87%	56%	56%	87%	91%	74%	77%	91%	41%	90%	93%	41%				
[11]	10/1/2019	12/31/2019	100%	99%	100%	100%	95%	90%	94%	95%	91%	84%	87%	91%	79%	88%	79%	79%	72%	90%	89%	71%	81%	94%	94%	80%	73%	96%	97%	73%	27%	98%	99%	27%				
[12]	1/1/2020	3/31/2020	100%	100%	100%	100%	89%	93%	94%	89%	77%	85%	89%	77%	57%	73%	80%	56%	65%	81%	86%	65%	68%	90%	93%	68%	49%	90%	96%	49%	18%	96%	99%	18%				
[13]	4/1/2020	6/30/2020	100%	100%	100%	100%	96%	97%	99%	95%	90%	93%	98%	89%	73%	87%	94%	73%	57%	69%	98%	56%	29%	67%	96%	29%	16%	71%	96%	15%	6%	80%	99%	6%				
[14]	7/1/2020	9/30/2020	100%	100%	100%	100%	89%	91%	94%	89%	80%	84%	87%	80%	65%	73%	85%	65%	53%	64%	85%	53%	39%	71%	81%	39%	19%	72%	91%	19%	9%	82%	96%	9%				
[15]	10/1/2020	12/31/2020	100%	99%	100%	100%	89%	94%	93%	88%	77%	90%	86%	77%	64%	80%	79%	64%	56%	79%	79%	56%	34%	79%	87%	34%	19%	65%	93%	19%	20%	71%	96%	20%				
[16]	1/1/2021	3/31/2021	100%	100%	100%	100%	90%	91%	91%	89%	80%	81%	84%	79%	49%	57%	61%	47%	21%	31%	33%	20%	12%	16%	31%	12%	7%	8%	48%	6%	24%	5%	58%	24%				
[17]	4/1/2021	6/30/2021	100%	100%	100%	100%	92%	87%	90%	92%	84%	78%	85%	84%	85%	78%	90%	85%	77%	75%	90%	77%	68%	82%	94%	68%	78%	88%	97%	78%	85%	87%	97%	85%				
[18]	7/1/2021	9/30/2021	100%	100%	100%	100%	89%	95%	94%	89%	78%	88%	86%	78%	56%	78%	79%	56%	49%	67%	73%	49%	55%	81%	86%	55%	69%	88%	92%	69%	76%	83%	87%	76%				
[19]	10/1/2021	12/31/2021	100%	100%	100%	100%	94%	93%	93%	94%	89%	89%	89%	90%	85%	77%	78%	84%	93%	75%	68%	93%	97%	74%	65%	96%	98%	74%	61%	98%	98%	71%	59%	98%				
[20]	1/1/2022	3/31/2022	100%	100%	100%	100%	92%	93%	90%	92%	85%	88%	81%	85%	68%	75%	66%	68%	71%	71%	66%	71%	86%	84%	69%	86%	91%	68%	59%	91%	91%	68%	59%	91%				
[21]	4/1/2022	6/30/2022	100%	100%	100%	100%	96%	92%	91%	96%	93%	83%	83%	93%	95%	75%	68%	95%	91%	62%	58%	91%	80%	47%	51%	80%	82%	44%	47%	82%	82%	44%	47%	82%				
[22]	7/1/2022	9/30/2022	100%	99%	100%	100%	92%	88%	89%	92%	82%	78%	81%	83%	60%	58%	68%	60%	41%	34%	45%	41%	39%	29%	41%	39%	39%	29%	41%	39%	39%	29%	41%	39%				
[23]	10/1/2022	11/17/2022	100%	100%	100%	100%	94%	93%	95%	94%	90%	89%	88%	90%	94%	94%	92%	94%	94%	95%	93%	94%	94%	95%	93%	94%	94%	95%	93%	94%	94%	95%	93%	94%				
[24]	All Purchase Dates		100%	100%	100%	99%	92%	93%	93%	91%	85%	86%	86%	84%	73%	78%	75%	72%	66%	70%	70%	65%	64%	70%	70%	63%	61%	70%	69%	61%	46%	85%	78%	46%				

Notes and Sources:

Backup Exhibits 2A-2D, produced electronically

Earliest Purchase-Date: 5/3/2017 (start of class period)

Using reported high price for purchase and reported low price for sale

[a] Start of Purchase Period

[b] End of Purchase Period

[c]-[f] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 1 day from the Purchase-Date for the listed XRP Trading Pair

[g]-[j] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 3 days from the Purchase-Date for the listed XRP Trading Pair

[k]-[n] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 7 days from the Purchase-Date for the listed XRP Trading Pair

[o]-[r] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 30 days from the Purchase-Date for the listed XRP Trading Pair

[s]-[v] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 90 days from the Purchase-Date for the listed XRP Trading Pair

[w]-[z] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 180 days from the Purchase-Date for the listed XRP Trading Pair

[aa]-[ad] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 360 days from the Purchase-Date for the listed XRP Trading Pair

[ae]-[ah] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date on or before 11/18/2022 for the listed XRP Trading Pair

Exhibit 2.4

Percentage of Purchase-Date/Sale-Date Combinations with Gain (Zero or Positive Profit) (Red shading shows percentages lesser than or equal to 10%) - buy high-sell low

	Purchase Period		Sell XRP within X Days of Purchase																																
	Start	End	Within 1D				Within 3D				Within 7D				Within 30D				Within 90D				Within 180D				Within 360D				Through 11/18/22				
			USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	USD	BTC	ETH	USDT	
			[a]	[b]	[c]	[d]	[e]	[f]	[g]	[h]	[i]	[j]	[k]	[l]	[m]	[n]	[o]	[p]	[q]	[r]	[s]	[t]	[u]	[v]	[w]	[x]	[y]	[z]	[aa]	[ab]	[ac]	[ad]	[ae]	[af]	[ag]
[1]	5/3/2017	6/30/2017	0%	0%	7%	17%	11%	10%	19%	24%	21%	18%	25%	29%	23%	14%	25%	27%	17%	9%	13%	19%	16%	5%	8%	18%	55%	11%	27%	56%	68%	3%	28%	69%	
[2]	7/1/2017	9/30/2017	0%	0%	0%	15%	7%	3%	4%	19%	15%	7%	12%	25%	32%	12%	25%	37%	47%	8%	24%	49%	68%	32%	44%	68%	84%	55%	71%	84%	89%	20%	52%	89%	
[3]	10/1/2017	12/31/2017	0%	0%	0%	2%	12%	11%	11%	12%	25%	20%	20%	25%	51%	33%	29%	49%	68%	61%	53%	65%	75%	77%	69%	73%	76%	81%	79%	75%	69%	34%	49%	68%	
[4]	1/1/2018	3/31/2018	0%	0%	0%	0%	6%	4%	6%	5%	7%	6%	15%	7%	10%	9%	36%	10%	10%	16%	35%	10%	5%	8%	23%	5%	3%	13%	53%	3%	8%	3%	29%	8%	
[5]	4/1/2018	6/30/2018	0%	0%	0%	0%	6%	5%	6%	6%	15%	13%	13%	15%	20%	23%	19%	20%	13%	16%	21%	13%	8%	14%	48%	8%	4%	26%	74%	4%	20%	6%	34%	20%	
[6]	7/1/2018	9/30/2018	0%	0%	0%	0%	8%	8%	10%	8%	14%	14%	20%	13%	23%	22%	49%	23%	45%	52%	78%	46%	37%	70%	85%	37%	31%	56%	85%	31%	42%	13%	32%	42%	
[7]	10/1/2018	12/31/2018	0%	0%	0%	0%	7%	9%	8%	6%	12%	19%	18%	12%	22%	42%	41%	21%	11%	48%	45%	11%	12%	39%	32%	12%	9%	19%	16%	10%	37%	5%	4%	37%	
[8]	1/1/2019	3/31/2019	0%	0%	0%	0%	4%	1%	7%	4%	11%	3%	13%	11%	24%	1%	20%	23%	34%	0%	8%	35%	44%	0%	4%	45%	22%	0%	2%	23%	53%	0%	1%	54%	
[9]	4/1/2019	6/30/2019	0%	0%	0%	0%	11%	4%	3%	10%	18%	7%	6%	18%	28%	7%	7%	29%	36%	3%	4%	37%	19%	1%	6%	19%	10%	1%	3%	10%	47%	0%	1%	48%	
[10]	7/1/2019	9/30/2019	0%	0%	0%	0%	6%	9%	5%	6%	8%	17%	12%	8%	14%	33%	30%	14%	18%	51%	46%	19%	13%	44%	44%	13%	9%	26%	23%	9%	59%	10%	7%	59%	
[11]	10/1/2019	12/31/2019	0%	1%	0%	0%	5%	10%	6%	5%	9%	16%	13%	9%	21%	12%	21%	21%	28%	10%	11%	29%	19%	6%	6%	20%	27%	4%	3%	27%	73%	2%	1%	73%	
[12]	1/1/2020	3/31/2020	0%	0%	0%	0%	11%	7%	6%	11%	23%	15%	11%	23%	43%	27%	20%	44%	35%	19%	14%	35%	32%	10%	7%	32%	51%	10%	4%	51%	82%	4%	1%	82%	
[13]	4/1/2020	6/30/2020	0%	0%	0%	0%	4%	3%	1%	5%	10%	7%	2%	11%	27%	13%	6%	27%	43%	31%	2%	44%	71%	33%	4%	71%	84%	29%	4%	85%	94%	20%	1%	94%	
[14]	7/1/2020	9/30/2020	0%	0%	0%	0%	11%	9%	6%	11%	20%	16%	13%	20%	35%	27%	15%	35%	47%	36%	15%	47%	61%	29%	19%	61%	81%	28%	9%	81%	91%	18%	4%	91%	
[15]	10/1/2020	12/31/2020	0%	1%	0%	0%	11%	6%	7%	12%	23%	10%	14%	23%	36%	20%	21%	36%	44%	21%	21%	44%	66%	21%	13%	66%	81%	35%	7%	81%	80%	29%	4%	80%	
[16]	1/1/2021	3/31/2021	0%	0%	0%	0%	10%	9%	9%	11%	20%	19%	16%	21%	51%	43%	39%	53%	79%	69%	67%	80%	88%	84%	69%	88%	93%	92%	52%	94%	76%	95%	42%	76%	
[17]	4/1/2021	6/30/2021	0%	0%	0%	0%	8%	13%	10%	8%	16%	22%	15%	16%	15%	22%	10%	15%	23%	25%	10%	23%	32%	18%	6%	32%	22%	12%	3%	22%	15%	13%	3%	15%	
[18]	7/1/2021	9/30/2021	0%	0%	0%	0%	11%	5%	6%	11%	22%	12%	14%	22%	44%	22%	21%	44%	51%	33%	27%	51%	45%	19%	14%	45%	31%	12%	8%	31%	24%	17%	13%	24%	
[19]	10/1/2021	12/31/2021	0%	0%	0%	0%	6%	7%	7%	6%	11%	11%	11%	10%	15%	23%	22%	16%	7%	25%	32%	7%	3%	26%	35%	4%	2%	26%	39%	2%	2%	29%	41%	2%	
[20]	1/1/2022	3/31/2022	0%	0%	0%	0%	8%	7%	10%	8%	15%	12%	19%	15%	32%	25%	34%	32%	29%	29%	34%	29%	14%	16%	31%	14%	9%	32%	41%	9%	9%	32%	41%	9%	
[21]	4/1/2022	6/30/2022	0%	0%	0%	0%	4%	8%	9%	4%	7%	17%	17%	7%	5%	25%	32%	5%	9%	38%	42%	9%	20%	53%	49%	20%	18%	56%	53%	18%	18%	56%	53%	18%	
[22]	7/1/2022	9/30/2022	0%	1%	0%	0%	8%	12%	11%	8%	18%	22%	19%	17%	40%	42%	32%	40%	59%	66%	55%	59%	61%	71%	59%	61%	61%	71%	59%	61%	61%	71%	59%	61%	
[23]	10/1/2022	11/17/2022	0%	0%	0%	0%	6%	7%	5%	6%	10%	11%	12%	10%	6%	6%	8%	6%	6%	5%	7%	6%	6%	5%	7%	6%	6%	5%	7%	6%	6%	5%	7%	6%	
[24]	All Purchase Dates		0%	0%	0%	1%	8%	7%	7%	9%	15%	14%	14%	16%	27%	22%	25%	28%	34%	30%	30%	35%	36%	30%	30%	37%	39%	30%	31%	39%	54%	15%	22%	54%	

Notes and Sources:

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Earliest Purchase-Date: 5/3/2017 (start of class period)

Using reported high price for purchase and reported low price for sale

[a] Start of Purchase Period

[b] End of Purchase Period

[c]-[f] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 1 day from the Purchase-Date for the listed XRP Trading Pair

[g]-[j] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 3 days from the Purchase-Date for the listed XRP Trading Pair

[k]-[n] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 7 days from the Purchase-Date for the listed XRP Trading Pair

[o]-[r] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 30 days from the Purchase-Date for the listed XRP Trading Pair

[s]-[v] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 90 days from the Purchase-Date for the listed XRP Trading Pair

[w]-[z] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 180 days from the Purchase-Date for the listed XRP Trading Pair

[aa]-[ad] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date within 360 days from the Purchase-Date for the listed XRP Trading Pair

[ae]-[ah] Percentage of Purchase-Date/Sale-Date combinations with a loss assuming a Sale-Date on or before 11/18/2022 for the listed XRP Trading Pair

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[1]	5/3/2017	0.0620	0.0525	18.2%
[2]	5/4/2017	0.0879	0.0600	46.6%
[3]	5/5/2017	0.1050	0.0778	35.0%
[4]	5/6/2017	0.1039	0.0903	15.1%
[5]	5/7/2017	0.1550	0.0973	59.4%
[6]	5/8/2017	0.2240	0.1121	99.8%
[7]	5/9/2017	0.2070	0.1120	84.8%
[8]	5/10/2017	0.1979	0.1510	31.1%
[9]	5/11/2017	0.1973	0.1618	21.9%
[10]	5/12/2017	0.2100	0.1806	16.3%
[11]	5/13/2017	0.2220	0.1951	13.8%
[12]	5/14/2017	0.2200	0.2076	6.0%
[13]	5/15/2017	0.2631	0.2156	22.0%
[14]	5/16/2017	0.3347	0.2500	33.9%
[15]	5/17/2017	0.3989	0.2850	40.0%
[16]	5/18/2017	0.3925	0.3040	29.1%
[17]	5/19/2017	0.3594	0.2817	27.6%
[18]	5/20/2017	0.3590	0.2890	24.2%
[19]	5/21/2017	0.3600	0.3190	12.9%
[20]	5/22/2017	0.3308	0.2348	40.9%
[21]	5/23/2017	0.3542	0.2827	25.3%
[22]	5/24/2017	0.3400	0.2860	18.9%
[23]	5/25/2017	0.3027	0.2310	31.0%
[24]	5/26/2017	0.3282	0.2400	36.8%
[25]	5/27/2017	0.2870	0.1350	112.6%
[26]	5/28/2017	0.2489	0.2033	22.4%
[27]	5/29/2017	0.2462	0.2102	17.1%
[28]	5/30/2017	0.2388	0.1868	27.8%
[29]	5/31/2017	0.2510	0.1931	30.0%
[30]	6/1/2017	0.3400	0.2456	38.4%
[31]	6/2/2017	0.3372	0.2759	22.2%
[32]	6/3/2017	0.3070	0.2711	13.2%
[33]	6/4/2017	0.3100	0.2710	14.4%
[34]	6/5/2017	0.2979	0.2869	3.8%
[35]	6/6/2017	0.2950	0.2740	7.7%
[36]	6/7/2017	0.3000	0.2717	10.4%
[37]	6/8/2017	0.2973	0.2700	10.1%
[38]	6/9/2017	0.2960	0.2800	5.7%
[39]	6/10/2017	0.2848	0.2555	11.5%
[40]	6/11/2017	0.2800	0.2543	10.1%
[41]	6/12/2017	0.2820	0.2325	21.3%
[42]	6/13/2017	0.2750	0.2454	12.1%
[43]	6/14/2017	0.3000	0.2450	22.4%
[44]	6/15/2017	0.2642	0.2140	23.5%
[45]	6/16/2017	0.2570	0.2325	10.5%
[46]	6/17/2017	0.2650	0.2357	12.4%
[47]	6/18/2017	0.2780	0.2470	12.6%
[48]	6/19/2017	0.2820	0.2588	9.0%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[49]	6/20/2017	0.3250	0.2742	18.5%
[50]	6/21/2017	0.3126	0.2542	23.0%
[51]	6/22/2017	0.2816	0.2513	12.1%
[52]	6/23/2017	0.2950	0.2767	6.6%
[53]	6/24/2017	0.3039	0.2564	18.5%
[54]	6/25/2017	0.2816	0.2485	13.3%
[55]	6/26/2017	0.2672	0.2184	22.3%
[56]	6/27/2017	0.2618	0.2261	15.8%
[57]	6/28/2017	0.2687	0.2487	8.0%
[58]	6/29/2017	0.2693	0.2513	7.2%
[59]	6/30/2017	0.2596	0.2450	6.0%
[60]	7/1/2017	0.2518	0.2337	7.7%
[61]	7/2/2017	0.2547	0.2330	9.3%
[62]	7/3/2017	0.2567	0.2445	5.0%
[63]	7/4/2017	0.2581	0.2471	4.5%
[64]	7/5/2017	0.2563	0.2434	5.3%
[65]	7/6/2017	0.2528	0.2482	1.9%
[66]	7/7/2017	0.2516	0.2298	9.5%
[67]	7/8/2017	0.2321	0.2112	9.9%
[68]	7/9/2017	0.2422	0.2259	7.2%
[69]	7/10/2017	0.2269	0.1707	32.9%
[70]	7/11/2017	0.1994	0.1511	32.0%
[71]	7/12/2017	0.1971	0.1656	19.0%
[72]	7/13/2017	0.2178	0.1810	20.3%
[73]	7/14/2017	0.1925	0.1717	12.1%
[74]	7/15/2017	0.1848	0.1707	8.3%
[75]	7/16/2017	0.1743	0.1275	36.7%
[76]	7/17/2017	0.1732	0.1451	19.4%
[77]	7/18/2017	0.1890	0.1605	17.8%
[78]	7/19/2017	0.1838	0.1574	16.8%
[79]	7/20/2017	0.1962	0.1620	21.1%
[80]	7/21/2017	0.1936	0.1828	5.9%
[81]	7/22/2017	0.2022	0.1820	11.1%
[82]	7/23/2017	0.2065	0.1873	10.3%
[83]	7/24/2017	0.1984	0.1893	4.8%
[84]	7/25/2017	0.1926	0.1658	16.2%
[85]	7/26/2017	0.1787	0.1642	8.8%
[86]	7/27/2017	0.1756	0.1700	3.3%
[87]	7/28/2017	0.1738	0.1591	9.2%
[88]	7/29/2017	0.1704	0.1550	9.9%
[89]	7/30/2017	0.1709	0.1609	6.2%
[90]	7/31/2017	0.1689	0.1585	6.6%
[91]	8/1/2017	0.1847	0.1620	14.0%
[92]	8/2/2017	0.1794	0.1676	7.0%
[93]	8/3/2017	0.1771	0.1696	4.4%
[94]	8/4/2017	0.1767	0.1717	2.9%
[95]	8/5/2017	0.1928	0.1719	12.2%
[96]	8/6/2017	0.1896	0.1786	6.2%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[97]	8/7/2017	0.1828	0.1766	3.5%
[98]	8/8/2017	0.1972	0.1772	11.3%
[99]	8/9/2017	0.1967	0.1818	8.2%
[100]	8/10/2017	0.1850	0.1784	3.7%
[101]	8/11/2017	0.1840	0.1758	4.7%
[102]	8/12/2017	0.1825	0.1707	6.9%
[103]	8/13/2017	0.1721	0.1587	8.4%
[104]	8/14/2017	0.1801	0.1652	9.0%
[105]	8/15/2017	0.1683	0.1530	10.0%
[106]	8/16/2017	0.1606	0.1489	7.9%
[107]	8/17/2017	0.1610	0.1540	4.5%
[108]	8/18/2017	0.1704	0.1518	12.3%
[109]	8/19/2017	0.1616	0.1483	9.0%
[110]	8/20/2017	0.1611	0.1494	7.8%
[111]	8/21/2017	0.2081	0.1523	36.6%
[112]	8/22/2017	0.2598	0.1715	51.5%
[113]	8/23/2017	0.2977	0.2169	37.3%
[114]	8/24/2017	0.2862	0.2124	34.7%
[115]	8/25/2017	0.2309	0.2029	13.8%
[116]	8/26/2017	0.2308	0.2069	11.6%
[117]	8/27/2017	0.2104	0.1930	9.0%
[118]	8/28/2017	0.2420	0.1947	24.3%
[119]	8/29/2017	0.2262	0.2125	6.4%
[120]	8/30/2017	0.2332	0.2175	7.2%
[121]	8/31/2017	0.2648	0.2275	16.4%
[122]	9/1/2017	0.2604	0.2444	6.5%
[123]	9/2/2017	0.2538	0.2185	16.2%
[124]	9/3/2017	0.2381	0.2168	9.8%
[125]	9/4/2017	0.2306	0.1901	21.3%
[126]	9/5/2017	0.2204	0.1917	15.0%
[127]	9/6/2017	0.2329	0.2162	7.7%
[128]	9/7/2017	0.2318	0.2216	4.6%
[129]	9/8/2017	0.2295	0.2026	13.3%
[130]	9/9/2017	0.2145	0.2075	3.4%
[131]	9/10/2017	0.2243	0.1993	12.5%
[132]	9/11/2017	0.2216	0.2087	6.2%
[133]	9/12/2017	0.2242	0.2060	8.8%
[134]	9/13/2017	0.2099	0.1904	10.2%
[135]	9/14/2017	0.2007	0.1663	20.7%
[136]	9/15/2017	0.1917	0.1483	29.3%
[137]	9/16/2017	0.1918	0.1741	10.2%
[138]	9/17/2017	0.1846	0.1717	7.5%
[139]	9/18/2017	0.1946	0.1814	7.3%
[140]	9/19/2017	0.1945	0.1831	6.2%
[141]	9/20/2017	0.1886	0.1808	4.3%
[142]	9/21/2017	0.1831	0.1703	7.5%
[143]	9/22/2017	0.1770	0.1675	5.7%
[144]	9/23/2017	0.1803	0.1701	6.0%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[145]	9/24/2017	0.1799	0.1733	3.8%
[146]	9/25/2017	0.1869	0.1748	6.9%
[147]	9/26/2017	0.1940	0.1809	7.2%
[148]	9/27/2017	0.2146	0.1874	14.5%
[149]	9/28/2017	0.2102	0.1968	6.8%
[150]	9/29/2017	0.2025	0.1880	7.7%
[151]	9/30/2017	0.2051	0.1955	4.9%
[152]	10/1/2017	0.2085	0.1965	6.1%
[153]	10/2/2017	0.2092	0.2001	4.5%
[154]	10/3/2017	0.2062	0.1980	4.1%
[155]	10/4/2017	0.2170	0.2012	7.9%
[156]	10/5/2017	0.2442	0.2134	14.4%
[157]	10/6/2017	0.2444	0.2332	4.8%
[158]	10/7/2017	0.2411	0.2324	3.7%
[159]	10/8/2017	0.2811	0.2385	17.9%
[160]	10/9/2017	0.2802	0.2340	19.7%
[161]	10/10/2017	0.2666	0.2406	10.8%
[162]	10/11/2017	0.2656	0.2553	4.0%
[163]	10/12/2017	0.2652	0.2461	7.8%
[164]	10/13/2017	0.2651	0.2330	13.8%
[165]	10/14/2017	0.2685	0.2542	5.6%
[166]	10/15/2017	0.2691	0.2482	8.4%
[167]	10/16/2017	0.2977	0.2523	18.0%
[168]	10/17/2017	0.2654	0.2140	24.0%
[169]	10/18/2017	0.2344	0.2016	16.3%
[170]	10/19/2017	0.2320	0.2064	12.4%
[171]	10/20/2017	0.2234	0.2056	8.7%
[172]	10/21/2017	0.2107	0.1971	6.9%
[173]	10/22/2017	0.2114	0.1954	8.2%
[174]	10/23/2017	0.2020	0.1845	9.5%
[175]	10/24/2017	0.2169	0.1830	18.5%
[176]	10/25/2017	0.2047	0.1961	4.4%
[177]	10/26/2017	0.2046	0.1999	2.4%
[178]	10/27/2017	0.2027	0.1980	2.4%
[179]	10/28/2017	0.2008	0.1974	1.7%
[180]	10/29/2017	0.2053	0.1966	4.4%
[181]	10/30/2017	0.2044	0.2001	2.1%
[182]	10/31/2017	0.2034	0.1975	3.0%
[183]	11/1/2017	0.2006	0.1896	5.8%
[184]	11/2/2017	0.2065	0.1755	17.7%
[185]	11/3/2017	0.2263	0.1961	15.4%
[186]	11/4/2017	0.2061	0.2001	3.0%
[187]	11/5/2017	0.2033	0.1984	2.5%
[188]	11/6/2017	0.2067	0.1981	4.3%
[189]	11/7/2017	0.2065	0.1993	3.6%
[190]	11/8/2017	0.2235	0.2031	10.0%
[191]	11/9/2017	0.2218	0.2126	4.3%
[192]	11/10/2017	0.2185	0.1988	9.9%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[193]	11/11/2017	0.2147	0.2016	6.5%
[194]	11/12/2017	0.2094	0.1861	12.5%
[195]	11/13/2017	0.2001	0.1906	5.0%
[196]	11/14/2017	0.2103	0.1995	5.4%
[197]	11/15/2017	0.2101	0.2037	3.1%
[198]	11/16/2017	0.2809	0.2058	36.5%
[199]	11/17/2017	0.2376	0.2174	9.3%
[200]	11/18/2017	0.2293	0.2191	4.7%
[201]	11/19/2017	0.2370	0.2231	6.2%
[202]	11/20/2017	0.2462	0.2315	6.3%
[203]	11/21/2017	0.2444	0.2292	6.6%
[204]	11/22/2017	0.2417	0.2317	4.3%
[205]	11/23/2017	0.2503	0.2357	6.2%
[206]	11/24/2017	0.2443	0.2312	5.7%
[207]	11/25/2017	0.2531	0.2394	5.7%
[208]	11/26/2017	0.2492	0.2412	3.3%
[209]	11/27/2017	0.2497	0.2403	3.9%
[210]	11/28/2017	0.2806	0.2467	13.7%
[211]	11/29/2017	0.2797	0.2128	31.4%
[212]	11/30/2017	0.2468	0.2200	12.2%
[213]	12/1/2017	0.2511	0.2259	11.2%
[214]	12/2/2017	0.2494	0.2403	3.8%
[215]	12/3/2017	0.2586	0.2354	9.9%
[216]	12/4/2017	0.2486	0.2354	5.6%
[217]	12/5/2017	0.2469	0.2305	7.1%
[218]	12/6/2017	0.2340	0.2099	11.5%
[219]	12/7/2017	0.2197	0.2009	9.4%
[220]	12/8/2017	0.2530	0.2005	26.2%
[221]	12/9/2017	0.2446	0.2295	6.6%
[222]	12/10/2017	0.2366	0.2223	6.4%
[223]	12/11/2017	0.2470	0.2270	8.8%
[224]	12/12/2017	0.4369	0.2442	78.9%
[225]	12/13/2017	0.5006	0.3388	47.8%
[226]	12/14/2017	0.8809	0.4527	94.6%
[227]	12/15/2017	0.8523	0.6183	37.8%
[228]	12/16/2017	0.8122	0.7177	13.2%
[229]	12/17/2017	0.7524	0.7016	7.2%
[230]	12/18/2017	0.7912	0.6651	19.0%
[231]	12/19/2017	0.8402	0.7019	19.7%
[232]	12/20/2017	0.7426	0.6568	13.1%
[233]	12/21/2017	1.1300	0.7128	58.5%
[234]	12/22/2017	1.2400	0.6203	99.9%
[235]	12/23/2017	1.0700	0.9263	15.5%
[236]	12/24/2017	1.0100	0.8253	22.4%
[237]	12/25/2017	1.0200	0.9236	10.4%
[238]	12/26/2017	1.0900	0.9712	12.2%
[239]	12/27/2017	1.2800	1.0700	19.6%
[240]	12/28/2017	1.3100	1.1000	19.1%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[241]	12/29/2017	1.9700	1.2500	57.6%
[242]	12/30/2017	2.4400	1.7700	37.9%
[243]	12/31/2017	2.0900	1.6100	29.8%
[244]	1/1/2018	2.0900	1.8100	15.5%
[245]	1/2/2018	2.2100	1.8900	16.9%
[246]	1/3/2018	2.8500	2.1500	32.6%
[247]	1/4/2018	3.2900	2.5800	27.5%
[248]	1/5/2018	3.0500	2.2400	36.2%
[249]	1/6/2018	2.8500	2.4600	15.9%
[250]	1/7/2018	2.8200	2.5800	9.3%
[251]	1/8/2018	2.7800	1.9300	44.0%
[252]	1/9/2018	2.5000	1.9200	30.2%
[253]	1/10/2018	2.1300	1.6300	30.7%
[254]	1/11/2018	2.2400	1.5600	43.6%
[255]	1/12/2018	2.1600	1.8100	19.3%
[256]	1/13/2018	2.1000	1.9600	7.1%
[257]	1/14/2018	2.0000	1.7600	13.6%
[258]	1/15/2018	1.8800	1.6300	15.3%
[259]	1/16/2018	1.6800	0.8696	93.2%
[260]	1/17/2018	1.3800	0.8747	57.8%
[261]	1/18/2018	1.7300	1.2300	40.7%
[262]	1/19/2018	1.6800	1.4700	14.3%
[263]	1/20/2018	1.6300	1.4800	10.1%
[264]	1/21/2018	1.5700	1.3100	19.8%
[265]	1/22/2018	1.4200	1.1400	24.6%
[266]	1/23/2018	1.4400	1.1800	22.0%
[267]	1/24/2018	1.4200	1.2900	10.1%
[268]	1/25/2018	1.3800	1.2800	7.8%
[269]	1/26/2018	1.3200	1.1100	18.9%
[270]	1/27/2018	1.2400	1.1800	5.1%
[271]	1/28/2018	1.3900	1.2200	13.9%
[272]	1/29/2018	1.3700	1.2500	9.6%
[273]	1/30/2018	1.2700	1.0900	16.5%
[274]	1/31/2018	1.1500	1.0200	12.7%
[275]	2/1/2018	1.1400	0.8958	27.3%
[276]	2/2/2018	0.9610	0.6586	45.9%
[277]	2/3/2018	1.0200	0.7792	30.9%
[278]	2/4/2018	0.9678	0.7793	24.2%
[279]	2/5/2018	0.8350	0.6392	30.6%
[280]	2/6/2018	0.7785	0.5722	36.1%
[281]	2/7/2018	0.8132	0.6959	16.9%
[282]	2/8/2018	0.7887	0.7110	10.9%
[283]	2/9/2018	0.9280	0.7407	25.3%
[284]	2/10/2018	1.2300	0.9058	35.8%
[285]	2/11/2018	1.0400	0.8925	16.5%
[286]	2/12/2018	1.0800	0.9574	12.8%
[287]	2/13/2018	1.0500	0.9650	8.8%
[288]	2/14/2018	1.1500	0.9807	17.3%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[289]	2/15/2018	1.1400	1.0700	6.5%
[290]	2/16/2018	1.1200	1.0700	4.7%
[291]	2/17/2018	1.2000	1.1000	9.1%
[292]	2/18/2018	1.1800	1.0400	13.5%
[293]	2/19/2018	1.1300	1.0700	5.6%
[294]	2/20/2018	1.1300	1.0100	11.9%
[295]	2/21/2018	1.0400	0.9389	10.8%
[296]	2/22/2018	0.9999	0.8637	15.8%
[297]	2/23/2018	0.9829	0.8529	15.2%
[298]	2/24/2018	0.9670	0.8709	11.0%
[299]	2/25/2018	0.9242	0.8787	5.2%
[300]	2/26/2018	0.9433	0.8756	7.7%
[301]	2/27/2018	0.9579	0.9177	4.4%
[302]	2/28/2018	0.9467	0.8817	7.4%
[303]	3/1/2018	0.9481	0.8754	8.3%
[304]	3/2/2018	0.9211	0.8869	3.9%
[305]	3/3/2018	0.9206	0.8914	3.3%
[306]	3/4/2018	1.0300	0.8847	16.4%
[307]	3/5/2018	1.0900	0.9422	15.7%
[308]	3/6/2018	0.9791	0.8890	10.1%
[309]	3/7/2018	0.9130	0.7885	15.8%
[310]	3/8/2018	0.8716	0.7947	9.7%
[311]	3/9/2018	0.8415	0.7325	14.9%
[312]	3/10/2018	0.8412	0.7691	9.4%
[313]	3/11/2018	0.8301	0.7501	10.7%
[314]	3/12/2018	0.8282	0.7653	8.2%
[315]	3/13/2018	0.7991	0.7605	5.1%
[316]	3/14/2018	0.7918	0.6556	20.8%
[317]	3/15/2018	0.7238	0.6293	15.0%
[318]	3/16/2018	0.7091	0.6597	7.5%
[319]	3/17/2018	0.6829	0.6148	11.1%
[320]	3/18/2018	0.6822	0.5386	26.7%
[321]	3/19/2018	0.7249	0.6275	15.5%
[322]	3/20/2018	0.7203	0.6576	9.5%
[323]	3/21/2018	0.7085	0.6621	7.0%
[324]	3/22/2018	0.6902	0.6220	11.0%
[325]	3/23/2018	0.6535	0.6139	6.5%
[326]	3/24/2018	0.6776	0.6279	7.9%
[327]	3/25/2018	0.6541	0.6230	5.0%
[328]	3/26/2018	0.6377	0.5754	10.8%
[329]	3/27/2018	0.6018	0.5579	7.9%
[330]	3/28/2018	0.5886	0.5651	4.2%
[331]	3/29/2018	0.5745	0.4975	15.5%
[332]	3/30/2018	0.5257	0.4715	11.5%
[333]	3/31/2018	0.5219	0.4929	5.9%
[334]	4/1/2018	0.5078	0.4552	11.6%
[335]	4/2/2018	0.5034	0.4719	6.7%
[336]	4/3/2018	0.5531	0.4919	12.4%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[337]	4/4/2018	0.5523	0.4861	13.6%
[338]	4/5/2018	0.4975	0.4750	4.7%
[339]	4/6/2018	0.4947	0.4592	7.7%
[340]	4/7/2018	0.4962	0.4713	5.3%
[341]	4/8/2018	0.5012	0.4841	3.5%
[342]	4/9/2018	0.5114	0.4749	7.7%
[343]	4/10/2018	0.4935	0.4778	3.3%
[344]	4/11/2018	0.5558	0.4858	14.4%
[345]	4/12/2018	0.6627	0.5029	31.8%
[346]	4/13/2018	0.7077	0.6132	15.4%
[347]	4/14/2018	0.6725	0.6217	8.2%
[348]	4/15/2018	0.6960	0.6401	8.7%
[349]	4/16/2018	0.6950	0.6349	9.5%
[350]	4/17/2018	0.6817	0.6510	4.7%
[351]	4/18/2018	0.7288	0.6530	11.6%
[352]	4/19/2018	0.7876	0.7047	11.8%
[353]	4/20/2018	0.9367	0.7828	19.7%
[354]	4/21/2018	0.9238	0.8061	14.6%
[355]	4/22/2018	0.9139	0.8394	8.9%
[356]	4/23/2018	0.8848	0.8452	4.7%
[357]	4/24/2018	0.9643	0.8680	11.1%
[358]	4/25/2018	0.9255	0.7689	20.4%
[359]	4/26/2018	0.8487	0.7618	11.4%
[360]	4/27/2018	0.8617	0.8033	7.3%
[361]	4/28/2018	0.8887	0.8018	10.8%
[362]	4/29/2018	0.9078	0.8249	10.0%
[363]	4/30/2018	0.8760	0.8189	7.0%
[364]	5/1/2018	0.8403	0.7823	7.4%
[365]	5/2/2018	0.8661	0.8239	5.1%
[366]	5/3/2018	0.8924	0.8398	6.3%
[367]	5/4/2018	0.9296	0.8573	8.4%
[368]	5/5/2018	0.9280	0.8877	4.5%
[369]	5/6/2018	0.9152	0.8412	8.8%
[370]	5/7/2018	0.8648	0.7987	8.3%
[371]	5/8/2018	0.8454	0.7912	6.9%
[372]	5/9/2018	0.8171	0.7588	7.7%
[373]	5/10/2018	0.8038	0.7464	7.7%
[374]	5/11/2018	0.7550	0.6487	16.4%
[375]	5/12/2018	0.7101	0.6291	12.9%
[376]	5/13/2018	0.7471	0.6646	12.4%
[377]	5/14/2018	0.7497	0.6888	8.8%
[378]	5/15/2018	0.7485	0.6819	9.8%
[379]	5/16/2018	0.7089	0.6595	7.5%
[380]	5/17/2018	0.7113	0.6510	9.3%
[381]	5/18/2018	0.6829	0.6469	5.6%
[382]	5/19/2018	0.6911	0.6607	4.6%
[383]	5/20/2018	0.7057	0.6681	5.6%
[384]	5/21/2018	0.7021	0.6695	4.9%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[385]	5/22/2018	0.6776	0.6360	6.5%
[386]	5/23/2018	0.6440	0.5755	11.9%
[387]	5/24/2018	0.6380	0.5773	10.5%
[388]	5/25/2018	0.6337	0.5941	6.7%
[389]	5/26/2018	0.6262	0.5980	4.7%
[390]	5/27/2018	0.6122	0.5982	2.3%
[391]	5/28/2018	0.6076	0.5470	11.1%
[392]	5/29/2018	0.6094	0.5447	11.9%
[393]	5/30/2018	0.6267	0.5831	7.5%
[394]	5/31/2018	0.6208	0.5900	5.2%
[395]	6/1/2018	0.6241	0.6047	3.2%
[396]	6/2/2018	0.6502	0.6147	5.8%
[397]	6/3/2018	0.6883	0.6381	7.9%
[398]	6/4/2018	0.7036	0.6357	10.7%
[399]	6/5/2018	0.6846	0.6337	8.0%
[400]	6/6/2018	0.6814	0.6556	3.9%
[401]	6/7/2018	0.6883	0.6705	2.7%
[402]	6/8/2018	0.6795	0.6583	3.2%
[403]	6/9/2018	0.6794	0.6560	3.6%
[404]	6/10/2018	0.6573	0.5527	18.9%
[405]	6/11/2018	0.6010	0.5606	7.2%
[406]	6/12/2018	0.5990	0.5446	10.0%
[407]	6/13/2018	0.5617	0.5047	11.3%
[408]	6/14/2018	0.5679	0.5200	9.2%
[409]	6/15/2018	0.5596	0.5285	5.9%
[410]	6/16/2018	0.5383	0.5188	3.8%
[411]	6/17/2018	0.5409	0.5226	3.5%
[412]	6/18/2018	0.5507	0.5070	8.6%
[413]	6/19/2018	0.5612	0.5350	4.9%
[414]	6/20/2018	0.5501	0.5236	5.1%
[415]	6/21/2018	0.5485	0.5305	3.4%
[416]	6/22/2018	0.5348	0.4701	13.8%
[417]	6/23/2018	0.4956	0.4752	4.3%
[418]	6/24/2018	0.4960	0.4404	12.6%
[419]	6/25/2018	0.4916	0.4727	4.0%
[420]	6/26/2018	0.4825	0.4517	6.8%
[421]	6/27/2018	0.4756	0.4486	6.0%
[422]	6/28/2018	0.4733	0.4435	6.7%
[423]	6/29/2018	0.4603	0.4248	8.4%
[424]	6/30/2018	0.4826	0.4537	6.4%
[425]	7/1/2018	0.4696	0.4500	4.4%
[426]	7/2/2018	0.4955	0.4528	9.4%
[427]	7/3/2018	0.5193	0.4784	8.5%
[428]	7/4/2018	0.5066	0.4753	6.6%
[429]	7/5/2018	0.5023	0.4697	6.9%
[430]	7/6/2018	0.4814	0.4596	4.7%
[431]	7/7/2018	0.4867	0.4646	4.8%
[432]	7/8/2018	0.4883	0.4750	2.8%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[433]	7/9/2018	0.4816	0.4711	2.2%
[434]	7/10/2018	0.4735	0.4392	7.8%
[435]	7/11/2018	0.4513	0.4404	2.5%
[436]	7/12/2018	0.4492	0.4246	5.8%
[437]	7/13/2018	0.4450	0.4306	3.3%
[438]	7/14/2018	0.4430	0.4326	2.4%
[439]	7/15/2018	0.4495	0.4358	3.1%
[440]	7/16/2018	0.4840	0.4432	9.2%
[441]	7/17/2018	0.5196	0.4691	10.8%
[442]	7/18/2018	0.5236	0.4764	9.9%
[443]	7/19/2018	0.4945	0.4718	4.8%
[444]	7/20/2018	0.4769	0.4301	10.9%
[445]	7/21/2018	0.4589	0.4350	5.5%
[446]	7/22/2018	0.4628	0.4467	3.6%
[447]	7/23/2018	0.4639	0.4421	4.9%
[448]	7/24/2018	0.4689	0.4377	7.1%
[449]	7/25/2018	0.4680	0.4515	3.7%
[450]	7/26/2018	0.4689	0.4469	4.9%
[451]	7/27/2018	0.4601	0.4446	3.5%
[452]	7/28/2018	0.4582	0.4482	2.2%
[453]	7/29/2018	0.4582	0.4503	1.8%
[454]	7/30/2018	0.4560	0.4346	4.9%
[455]	7/31/2018	0.4461	0.4272	4.4%
[456]	8/1/2018	0.4626	0.4266	8.4%
[457]	8/2/2018	0.4483	0.4300	4.3%
[458]	8/3/2018	0.4460	0.4259	4.7%
[459]	8/4/2018	0.4446	0.4279	3.9%
[460]	8/5/2018	0.4371	0.4274	2.3%
[461]	8/6/2018	0.4370	0.4030	8.4%
[462]	8/7/2018	0.4154	0.3750	10.8%
[463]	8/8/2018	0.3784	0.3199	18.3%
[464]	8/9/2018	0.3574	0.3282	8.9%
[465]	8/10/2018	0.3461	0.3128	10.6%
[466]	8/11/2018	0.3196	0.2882	10.9%
[467]	8/12/2018	0.3097	0.2948	5.1%
[468]	8/13/2018	0.3096	0.2716	14.0%
[469]	8/14/2018	0.2771	0.2468	12.3%
[470]	8/15/2018	0.3021	0.2729	10.7%
[471]	8/16/2018	0.3015	0.2758	9.3%
[472]	8/17/2018	0.3736	0.2910	28.4%
[473]	8/18/2018	0.3705	0.3133	18.3%
[474]	8/19/2018	0.3522	0.3185	10.6%
[475]	8/20/2018	0.3505	0.3136	11.8%
[476]	8/21/2018	0.3378	0.3135	7.8%
[477]	8/22/2018	0.3555	0.3107	14.4%
[478]	8/23/2018	0.3294	0.3154	4.4%
[479]	8/24/2018	0.3293	0.3153	4.4%
[480]	8/25/2018	0.3320	0.3222	3.0%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[481]	8/26/2018	0.3283	0.3185	3.1%
[482]	8/27/2018	0.3401	0.3218	5.7%
[483]	8/28/2018	0.3570	0.3348	6.6%
[484]	8/29/2018	0.3545	0.3384	4.8%
[485]	8/30/2018	0.3464	0.3232	7.2%
[486]	8/31/2018	0.3407	0.3276	4.0%
[487]	9/1/2018	0.3537	0.3346	5.7%
[488]	9/2/2018	0.3491	0.3361	3.9%
[489]	9/3/2018	0.3437	0.3328	3.3%
[490]	9/4/2018	0.3408	0.3285	3.7%
[491]	9/5/2018	0.3334	0.2778	20.0%
[492]	9/6/2018	0.3047	0.2680	13.7%
[493]	9/7/2018	0.3040	0.2811	8.1%
[494]	9/8/2018	0.2937	0.2693	9.1%
[495]	9/9/2018	0.2908	0.2710	7.3%
[496]	9/10/2018	0.2822	0.2600	8.5%
[497]	9/11/2018	0.2747	0.2526	8.7%
[498]	9/12/2018	0.2732	0.2535	7.8%
[499]	9/13/2018	0.2856	0.2674	6.8%
[500]	9/14/2018	0.2849	0.2718	4.8%
[501]	9/15/2018	0.2846	0.2758	3.2%
[502]	9/16/2018	0.2821	0.2743	2.8%
[503]	9/17/2018	0.2834	0.2667	6.3%
[504]	9/18/2018	0.3364	0.2692	25.0%
[505]	9/19/2018	0.3352	0.3109	7.8%
[506]	9/20/2018	0.4977	0.3216	54.8%
[507]	9/21/2018	0.7830	0.4265	83.6%
[508]	9/22/2018	0.6260	0.4923	27.2%
[509]	9/23/2018	0.5987	0.5559	7.7%
[510]	9/24/2018	0.5833	0.4829	20.8%
[511]	9/25/2018	0.5478	0.4360	25.6%
[512]	9/26/2018	0.5732	0.4840	18.4%
[513]	9/27/2018	0.5546	0.5065	9.5%
[514]	9/28/2018	0.5513	0.5149	7.1%
[515]	9/29/2018	0.5955	0.5237	13.7%
[516]	9/30/2018	0.6225	0.5589	11.4%
[517]	10/1/2018	0.6045	0.5325	13.5%
[518]	10/2/2018	0.5796	0.5135	12.9%
[519]	10/3/2018	0.5377	0.5067	6.1%
[520]	10/4/2018	0.5480	0.5248	4.4%
[521]	10/5/2018	0.5323	0.5096	4.5%
[522]	10/6/2018	0.5220	0.4682	11.5%
[523]	10/7/2018	0.4896	0.4671	4.8%
[524]	10/8/2018	0.5002	0.4782	4.6%
[525]	10/9/2018	0.4919	0.4697	4.7%
[526]	10/10/2018	0.4805	0.4595	4.6%
[527]	10/11/2018	0.4640	0.3761	23.4%
[528]	10/12/2018	0.4457	0.3763	18.4%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[529]	10/13/2018	0.4287	0.4144	3.5%
[530]	10/14/2018	0.4273	0.3986	7.2%
[531]	10/15/2018	0.5074	0.3964	28.0%
[532]	10/16/2018	0.4808	0.4506	6.7%
[533]	10/17/2018	0.4890	0.4650	5.2%
[534]	10/18/2018	0.4871	0.4494	8.4%
[535]	10/19/2018	0.4656	0.4520	3.0%
[536]	10/20/2018	0.4686	0.4529	3.5%
[537]	10/21/2018	0.4707	0.4596	2.4%
[538]	10/22/2018	0.4643	0.4518	2.8%
[539]	10/23/2018	0.4805	0.4402	9.2%
[540]	10/24/2018	0.4735	0.4579	3.4%
[541]	10/25/2018	0.4688	0.4550	3.0%
[542]	10/26/2018	0.4665	0.4549	2.6%
[543]	10/27/2018	0.4641	0.4547	2.1%
[544]	10/28/2018	0.4645	0.4562	1.8%
[545]	10/29/2018	0.4629	0.4332	6.9%
[546]	10/30/2018	0.4509	0.4414	2.2%
[547]	10/31/2018	0.4594	0.4369	5.1%
[548]	11/1/2018	0.4595	0.4484	2.5%
[549]	11/2/2018	0.4649	0.4561	1.9%
[550]	11/3/2018	0.4605	0.4541	1.4%
[551]	11/4/2018	0.4766	0.4489	6.2%
[552]	11/5/2018	0.5030	0.4622	8.8%
[553]	11/6/2018	0.5669	0.4992	13.6%
[554]	11/7/2018	0.5538	0.5263	5.2%
[555]	11/8/2018	0.5433	0.4916	10.5%
[556]	11/9/2018	0.5188	0.4939	5.0%
[557]	11/10/2018	0.5130	0.5005	2.5%
[558]	11/11/2018	0.5087	0.4958	2.6%
[559]	11/12/2018	0.5311	0.5024	5.7%
[560]	11/13/2018	0.5286	0.5072	4.2%
[561]	11/14/2018	0.5141	0.4112	25.0%
[562]	11/15/2018	0.4891	0.4273	14.5%
[563]	11/16/2018	0.4900	0.4619	6.1%
[564]	11/17/2018	0.5004	0.4671	7.1%
[565]	11/18/2018	0.5272	0.4921	7.1%
[566]	11/19/2018	0.5131	0.4650	10.3%
[567]	11/20/2018	0.5032	0.4089	23.1%
[568]	11/21/2018	0.4632	0.4140	11.9%
[569]	11/22/2018	0.4508	0.4205	7.2%
[570]	11/23/2018	0.4288	0.3944	8.7%
[571]	11/24/2018	0.4217	0.3643	15.8%
[572]	11/25/2018	0.3919	0.3234	21.2%
[573]	11/26/2018	0.3940	0.3410	15.5%
[574]	11/27/2018	0.3739	0.3426	9.1%
[575]	11/28/2018	0.4042	0.3625	11.5%
[576]	11/29/2018	0.3953	0.3715	6.4%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[577]	11/30/2018	0.3832	0.3537	8.3%
[578]	12/1/2018	0.3799	0.3563	6.6%
[579]	12/2/2018	0.3819	0.3644	4.8%
[580]	12/3/2018	0.3701	0.3435	7.7%
[581]	12/4/2018	0.3629	0.3375	7.5%
[582]	12/5/2018	0.3530	0.3359	5.1%
[583]	12/6/2018	0.3447	0.3042	13.3%
[584]	12/7/2018	0.3142	0.2894	8.6%
[585]	12/8/2018	0.3273	0.2929	11.7%
[586]	12/9/2018	0.3258	0.3024	7.7%
[587]	12/10/2018	0.3178	0.2973	6.9%
[588]	12/11/2018	0.3119	0.2949	5.8%
[589]	12/12/2018	0.3128	0.2985	4.8%
[590]	12/13/2018	0.3089	0.2965	4.2%
[591]	12/14/2018	0.3007	0.2834	6.1%
[592]	12/15/2018	0.2925	0.2815	3.9%
[593]	12/16/2018	0.2978	0.2850	4.5%
[594]	12/17/2018	0.3420	0.2866	19.3%
[595]	12/18/2018	0.3561	0.3263	9.1%
[596]	12/19/2018	0.3998	0.3488	14.6%
[597]	12/20/2018	0.3950	0.3480	13.5%
[598]	12/21/2018	0.3906	0.3547	10.1%
[599]	12/22/2018	0.3697	0.3504	5.5%
[600]	12/23/2018	0.3898	0.3656	6.6%
[601]	12/24/2018	0.4601	0.3754	22.6%
[602]	12/25/2018	0.4126	0.3700	11.5%
[603]	12/26/2018	0.3978	0.3624	9.8%
[604]	12/27/2018	0.3844	0.3340	15.1%
[605]	12/28/2018	0.3885	0.3374	15.1%
[606]	12/29/2018	0.3915	0.3646	7.4%
[607]	12/30/2018	0.3759	0.3624	3.7%
[608]	12/31/2018	0.3817	0.3520	8.4%
[609]	1/1/2019	0.3711	0.3522	5.4%
[610]	1/2/2019	0.3857	0.3639	6.0%
[611]	1/3/2019	0.3805	0.3530	7.8%
[612]	1/4/2019	0.3662	0.3522	4.0%
[613]	1/5/2019	0.3697	0.3510	5.3%
[614]	1/6/2019	0.3784	0.3527	7.3%
[615]	1/7/2019	0.3807	0.3638	4.6%
[616]	1/8/2019	0.3763	0.3607	4.3%
[617]	1/9/2019	0.3759	0.3626	3.7%
[618]	1/10/2019	0.3918	0.3227	21.4%
[619]	1/11/2019	0.3395	0.3265	4.0%
[620]	1/12/2019	0.3363	0.3288	2.3%
[621]	1/13/2019	0.3372	0.3161	6.7%
[622]	1/14/2019	0.3428	0.3182	7.7%
[623]	1/15/2019	0.3391	0.3231	5.0%
[624]	1/16/2019	0.3376	0.3261	3.5%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[625]	1/17/2019	0.3342	0.3242	3.1%
[626]	1/18/2019	0.3318	0.3212	3.3%
[627]	1/19/2019	0.3442	0.3241	6.2%
[628]	1/20/2019	0.3355	0.3145	6.7%
[629]	1/21/2019	0.3246	0.3163	2.6%
[630]	1/22/2019	0.3249	0.3091	5.1%
[631]	1/23/2019	0.3229	0.3151	2.5%
[632]	1/24/2019	0.3226	0.3143	2.6%
[633]	1/25/2019	0.3217	0.3134	2.6%
[634]	1/26/2019	0.3216	0.3145	2.3%
[635]	1/27/2019	0.3162	0.3050	3.7%
[636]	1/28/2019	0.3093	0.2838	9.0%
[637]	1/29/2019	0.2967	0.2836	4.6%
[638]	1/30/2019	0.3283	0.2863	14.7%
[639]	1/31/2019	0.3381	0.3057	10.6%
[640]	2/1/2019	0.3139	0.2978	5.4%
[641]	2/2/2019	0.3145	0.3053	3.0%
[642]	2/3/2019	0.3135	0.2982	5.1%
[643]	2/4/2019	0.3061	0.2973	3.0%
[644]	2/5/2019	0.3027	0.2961	2.2%
[645]	2/6/2019	0.3007	0.2878	4.5%
[646]	2/7/2019	0.2936	0.2884	1.8%
[647]	2/8/2019	0.3216	0.2897	11.0%
[648]	2/9/2019	0.3163	0.3075	2.9%
[649]	2/10/2019	0.3125	0.2995	4.3%
[650]	2/11/2019	0.3106	0.3017	2.9%
[651]	2/12/2019	0.3085	0.2975	3.7%
[652]	2/13/2019	0.3137	0.3011	4.2%
[653]	2/14/2019	0.3064	0.3010	1.8%
[654]	2/15/2019	0.3067	0.2988	2.6%
[655]	2/16/2019	0.3049	0.3008	1.4%
[656]	2/17/2019	0.3092	0.2990	3.4%
[657]	2/18/2019	0.3323	0.3035	9.5%
[658]	2/19/2019	0.3498	0.3218	8.7%
[659]	2/20/2019	0.3369	0.3209	5.0%
[660]	2/21/2019	0.3350	0.3187	5.1%
[661]	2/22/2019	0.3270	0.3174	3.0%
[662]	2/23/2019	0.3381	0.3204	5.5%
[663]	2/24/2019	0.3468	0.2983	16.3%
[664]	2/25/2019	0.3428	0.3000	14.3%
[665]	2/26/2019	0.3375	0.3166	6.6%
[666]	2/27/2019	0.3217	0.3024	6.4%
[667]	2/28/2019	0.3210	0.3105	3.4%
[668]	3/1/2019	0.3263	0.3137	4.0%
[669]	3/2/2019	0.3192	0.3119	2.3%
[670]	3/3/2019	0.3180	0.3104	2.4%
[671]	3/4/2019	0.3143	0.3005	4.6%
[672]	3/5/2019	0.3200	0.3030	5.6%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[673]	3/6/2019	0.3229	0.3120	3.5%
[674]	3/7/2019	0.3211	0.3139	2.3%
[675]	3/8/2019	0.3167	0.3056	3.6%
[676]	3/9/2019	0.3196	0.3085	3.6%
[677]	3/10/2019	0.3188	0.3104	2.7%
[678]	3/11/2019	0.3155	0.3092	2.0%
[679]	3/12/2019	0.3126	0.3073	1.7%
[680]	3/13/2019	0.3269	0.3084	6.0%
[681]	3/14/2019	0.3186	0.3009	5.9%
[682]	3/15/2019	0.3184	0.3126	1.9%
[683]	3/16/2019	0.3238	0.3160	2.5%
[684]	3/17/2019	0.3208	0.3165	1.4%
[685]	3/18/2019	0.3213	0.3143	2.2%
[686]	3/19/2019	0.3172	0.3134	1.2%
[687]	3/20/2019	0.3233	0.3127	3.4%
[688]	3/21/2019	0.3210	0.3049	5.3%
[689]	3/22/2019	0.3135	0.3083	1.7%
[690]	3/23/2019	0.3130	0.3099	1.0%
[691]	3/24/2019	0.3119	0.3052	2.2%
[692]	3/25/2019	0.3087	0.2998	3.0%
[693]	3/26/2019	0.3031	0.2882	5.2%
[694]	3/27/2019	0.3121	0.3003	3.9%
[695]	3/28/2019	0.3112	0.3056	1.8%
[696]	3/29/2019	0.3113	0.3057	1.8%
[697]	3/30/2019	0.3198	0.3090	3.5%
[698]	3/31/2019	0.3131	0.3090	1.3%
[699]	4/1/2019	0.3155	0.3092	2.0%
[700]	4/2/2019	0.3606	0.3122	15.5%
[701]	4/3/2019	0.3746	0.3269	14.6%
[702]	4/4/2019	0.3494	0.3266	7.0%
[703]	4/5/2019	0.3798	0.3313	14.6%
[704]	4/6/2019	0.3648	0.3490	4.5%
[705]	4/7/2019	0.3675	0.3522	4.3%
[706]	4/8/2019	0.3715	0.3496	6.3%
[707]	4/9/2019	0.3596	0.3494	2.9%
[708]	4/10/2019	0.3618	0.3464	4.4%
[709]	4/11/2019	0.3542	0.3231	9.6%
[710]	4/12/2019	0.3306	0.3186	3.8%
[711]	4/13/2019	0.3378	0.3231	4.5%
[712]	4/14/2019	0.3321	0.3231	2.8%
[713]	4/15/2019	0.3333	0.3142	6.1%
[714]	4/16/2019	0.3275	0.3167	3.4%
[715]	4/17/2019	0.3433	0.3213	6.8%
[716]	4/18/2019	0.3489	0.3344	4.3%
[717]	4/19/2019	0.3372	0.3283	2.7%
[718]	4/20/2019	0.3346	0.3233	3.5%
[719]	4/21/2019	0.3304	0.3177	4.0%
[720]	4/22/2019	0.3328	0.3198	4.1%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[721]	4/23/2019	0.3290	0.3205	2.7%
[722]	4/24/2019	0.3220	0.2913	10.5%
[723]	4/25/2019	0.3076	0.2811	9.4%
[724]	4/26/2019	0.3018	0.2847	6.0%
[725]	4/27/2019	0.3020	0.2940	2.7%
[726]	4/28/2019	0.3007	0.2939	2.3%
[727]	4/29/2019	0.3003	0.2895	3.7%
[728]	4/30/2019	0.3150	0.2945	7.0%
[729]	5/1/2019	0.3137	0.3015	4.0%
[730]	5/2/2019	0.3081	0.3019	2.1%
[731]	5/3/2019	0.3128	0.3008	4.0%
[732]	5/4/2019	0.3175	0.2993	6.1%
[733]	5/5/2019	0.3061	0.2998	2.1%
[734]	5/6/2019	0.3085	0.2959	4.3%
[735]	5/7/2019	0.3077	0.2967	3.7%
[736]	5/8/2019	0.3023	0.2954	2.3%
[737]	5/9/2019	0.3020	0.2925	3.2%
[738]	5/10/2019	0.3022	0.2913	3.7%
[739]	5/11/2019	0.3393	0.2978	13.9%
[740]	5/12/2019	0.3302	0.3054	8.1%
[741]	5/13/2019	0.3307	0.3083	7.3%
[742]	5/14/2019	0.4212	0.3226	30.6%
[743]	5/15/2019	0.4671	0.4071	14.7%
[744]	5/16/2019	0.4787	0.3947	21.3%
[745]	5/17/2019	0.4237	0.3594	17.9%
[746]	5/18/2019	0.3960	0.3643	8.7%
[747]	5/19/2019	0.4291	0.3705	15.8%
[748]	5/20/2019	0.4185	0.3800	10.1%
[749]	5/21/2019	0.4085	0.3881	5.3%
[750]	5/22/2019	0.4123	0.3670	12.3%
[751]	5/23/2019	0.3848	0.3621	6.3%
[752]	5/24/2019	0.3953	0.3718	6.3%
[753]	5/25/2019	0.3958	0.3820	3.6%
[754]	5/26/2019	0.4162	0.3753	10.9%
[755]	5/27/2019	0.4467	0.4065	9.9%
[756]	5/28/2019	0.4600	0.4185	9.9%
[757]	5/29/2019	0.4570	0.4220	8.3%
[758]	5/30/2019	0.4743	0.4020	18.0%
[759]	5/31/2019	0.4407	0.4071	8.3%
[760]	6/1/2019	0.4410	0.4190	5.3%
[761]	6/2/2019	0.4467	0.4282	4.3%
[762]	6/3/2019	0.4641	0.4172	11.2%
[763]	6/4/2019	0.4175	0.3845	8.6%
[764]	6/5/2019	0.4077	0.3882	5.0%
[765]	6/6/2019	0.4270	0.3915	9.1%
[766]	6/7/2019	0.4318	0.4156	3.9%
[767]	6/8/2019	0.4229	0.4042	4.6%
[768]	6/9/2019	0.4114	0.3710	10.9%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[769]	6/10/2019	0.4049	0.3806	6.4%
[770]	6/11/2019	0.4038	0.3834	5.3%
[771]	6/12/2019	0.4038	0.3889	3.8%
[772]	6/13/2019	0.4107	0.3966	3.6%
[773]	6/14/2019	0.4050	0.3919	3.3%
[774]	6/15/2019	0.4138	0.4023	2.9%
[775]	6/16/2019	0.4425	0.4085	8.3%
[776]	6/17/2019	0.4626	0.4270	8.3%
[777]	6/18/2019	0.4558	0.4187	8.9%
[778]	6/19/2019	0.4388	0.4245	3.4%
[779]	6/20/2019	0.4366	0.4216	3.6%
[780]	6/21/2019	0.4498	0.4301	4.6%
[781]	6/22/2019	0.5092	0.4427	15.0%
[782]	6/23/2019	0.4895	0.4634	5.6%
[783]	6/24/2019	0.4750	0.4468	6.3%
[784]	6/25/2019	0.4757	0.4557	4.4%
[785]	6/26/2019	0.4932	0.4384	12.5%
[786]	6/27/2019	0.4663	0.3898	19.6%
[787]	6/28/2019	0.4245	0.3974	6.8%
[788]	6/29/2019	0.4279	0.4006	6.8%
[789]	6/30/2019	0.4273	0.3920	9.0%
[790]	7/1/2019	0.4193	0.3859	8.7%
[791]	7/2/2019	0.4096	0.3820	7.2%
[792]	7/3/2019	0.4069	0.3953	2.9%
[793]	7/4/2019	0.4061	0.3858	5.3%
[794]	7/5/2019	0.3879	0.3742	3.7%
[795]	7/6/2019	0.4112	0.3793	8.4%
[796]	7/7/2019	0.4009	0.3872	3.5%
[797]	7/8/2019	0.4048	0.3935	2.9%
[798]	7/9/2019	0.4081	0.3900	4.6%
[799]	7/10/2019	0.3970	0.3468	14.5%
[800]	7/11/2019	0.3623	0.3185	13.8%
[801]	7/12/2019	0.3507	0.3200	9.6%
[802]	7/13/2019	0.3451	0.3238	6.6%
[803]	7/14/2019	0.3347	0.2999	11.6%
[804]	7/15/2019	0.3232	0.2950	9.6%
[805]	7/16/2019	0.3195	0.2838	12.6%
[806]	7/17/2019	0.3246	0.2931	10.7%
[807]	7/18/2019	0.3266	0.3036	7.6%
[808]	7/19/2019	0.3227	0.3107	3.9%
[809]	7/20/2019	0.3420	0.3192	7.1%
[810]	7/21/2019	0.3355	0.3211	4.5%
[811]	7/22/2019	0.3323	0.3157	5.3%
[812]	7/23/2019	0.3209	0.3060	4.9%
[813]	7/24/2019	0.3184	0.3030	5.1%
[814]	7/25/2019	0.3232	0.3119	3.6%
[815]	7/26/2019	0.3255	0.3077	5.8%
[816]	7/27/2019	0.3273	0.3052	7.2%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[817]	7/28/2019	0.3145	0.2995	5.0%
[818]	7/29/2019	0.3142	0.3056	2.8%
[819]	7/30/2019	0.3219	0.3068	4.9%
[820]	7/31/2019	0.3237	0.3154	2.6%
[821]	8/1/2019	0.3200	0.3118	2.6%
[822]	8/2/2019	0.3181	0.3094	2.8%
[823]	8/3/2019	0.3178	0.3113	2.1%
[824]	8/4/2019	0.3233	0.3123	3.5%
[825]	8/5/2019	0.3316	0.3194	3.8%
[826]	8/6/2019	0.3246	0.3078	5.5%
[827]	8/7/2019	0.3159	0.3072	2.8%
[828]	8/8/2019	0.3116	0.3040	2.5%
[829]	8/9/2019	0.3086	0.2899	6.5%
[830]	8/10/2019	0.3053	0.2911	4.9%
[831]	8/11/2019	0.3059	0.2952	3.6%
[832]	8/12/2019	0.3053	0.2979	2.5%
[833]	8/13/2019	0.3010	0.2921	3.0%
[834]	8/14/2019	0.2978	0.2407	23.7%
[835]	8/15/2019	0.2684	0.2455	9.3%
[836]	8/16/2019	0.2651	0.2548	4.0%
[837]	8/17/2019	0.2696	0.2586	4.3%
[838]	8/18/2019	0.2923	0.2638	10.8%
[839]	8/19/2019	0.2909	0.2762	5.3%
[840]	8/20/2019	0.2826	0.2699	4.7%
[841]	8/21/2019	0.2746	0.2581	6.4%
[842]	8/22/2019	0.2746	0.2606	5.4%
[843]	8/23/2019	0.2787	0.2680	4.0%
[844]	8/24/2019	0.2780	0.2645	5.1%
[845]	8/25/2019	0.2764	0.2664	3.8%
[846]	8/26/2019	0.2805	0.2669	5.1%
[847]	8/27/2019	0.2703	0.2649	2.0%
[848]	8/28/2019	0.2696	0.2467	9.3%
[849]	8/29/2019	0.2624	0.2476	6.0%
[850]	8/30/2019	0.2574	0.2526	1.9%
[851]	8/31/2019	0.2607	0.2535	2.8%
[852]	9/1/2019	0.2594	0.2513	3.2%
[853]	9/2/2019	0.2650	0.2537	4.5%
[854]	9/3/2019	0.2672	0.2584	3.4%
[855]	9/4/2019	0.2632	0.2567	2.5%
[856]	9/5/2019	0.2595	0.2538	2.2%
[857]	9/6/2019	0.2594	0.2474	4.9%
[858]	9/7/2019	0.2636	0.2506	5.2%
[859]	9/8/2019	0.2663	0.2566	3.8%
[860]	9/9/2019	0.2647	0.2568	3.1%
[861]	9/10/2019	0.2636	0.2535	4.0%
[862]	9/11/2019	0.2607	0.2511	3.8%
[863]	9/12/2019	0.2569	0.2509	2.4%
[864]	9/13/2019	0.2564	0.2525	1.5%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[865]	9/14/2019	0.2657	0.2546	4.4%
[866]	9/15/2019	0.2646	0.2593	2.0%
[867]	9/16/2019	0.2637	0.2570	2.6%
[868]	9/17/2019	0.2988	0.2601	14.9%
[869]	9/18/2019	0.3269	0.2855	14.5%
[870]	9/19/2019	0.3140	0.2830	11.0%
[871]	9/20/2019	0.3024	0.2835	6.7%
[872]	9/21/2019	0.2976	0.2866	3.8%
[873]	9/22/2019	0.2897	0.2684	7.9%
[874]	9/23/2019	0.2864	0.2663	7.5%
[875]	9/24/2019	0.2727	0.2188	24.6%
[876]	9/25/2019	0.2500	0.2322	7.7%
[877]	9/26/2019	0.2501	0.2287	9.4%
[878]	9/27/2019	0.2477	0.2335	6.1%
[879]	9/28/2019	0.2452	0.2387	2.7%
[880]	9/29/2019	0.2429	0.2351	3.3%
[881]	9/30/2019	0.2621	0.2359	11.1%
[882]	10/1/2019	0.2615	0.2454	6.6%
[883]	10/2/2019	0.2552	0.2451	4.1%
[884]	10/3/2019	0.2541	0.2424	4.8%
[885]	10/4/2019	0.2572	0.2453	4.9%
[886]	10/5/2019	0.2571	0.2468	4.2%
[887]	10/6/2019	0.2570	0.2518	2.1%
[888]	10/7/2019	0.2818	0.2540	10.9%
[889]	10/8/2019	0.2857	0.2715	5.2%
[890]	10/9/2019	0.2875	0.2739	5.0%
[891]	10/10/2019	0.2825	0.2658	6.3%
[892]	10/11/2019	0.2760	0.2652	4.1%
[893]	10/12/2019	0.2775	0.2679	3.6%
[894]	10/13/2019	0.2822	0.2719	3.8%
[895]	10/14/2019	0.2984	0.2771	7.7%
[896]	10/15/2019	0.2995	0.2835	5.6%
[897]	10/16/2019	0.2922	0.2788	4.8%
[898]	10/17/2019	0.3040	0.2803	8.5%
[899]	10/18/2019	0.3024	0.2851	6.1%
[900]	10/19/2019	0.2996	0.2879	4.1%
[901]	10/20/2019	0.2971	0.2817	5.5%
[902]	10/21/2019	0.2949	0.2891	2.0%
[903]	10/22/2019	0.3033	0.2887	5.1%
[904]	10/23/2019	0.2917	0.2501	16.6%
[905]	10/24/2019	0.2809	0.2670	5.2%
[906]	10/25/2019	0.3083	0.2753	12.0%
[907]	10/26/2019	0.3146	0.2842	10.7%
[908]	10/27/2019	0.3030	0.2906	4.3%
[909]	10/28/2019	0.3054	0.2942	3.8%
[910]	10/29/2019	0.3101	0.2947	5.2%
[911]	10/30/2019	0.3064	0.2905	5.5%
[912]	10/31/2019	0.2989	0.2886	3.6%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[913]	11/1/2019	0.2951	0.2852	3.5%
[914]	11/2/2019	0.2983	0.2915	2.3%
[915]	11/3/2019	0.2965	0.2891	2.6%
[916]	11/4/2019	0.3008	0.2897	3.8%
[917]	11/5/2019	0.3054	0.2956	3.3%
[918]	11/6/2019	0.3135	0.2975	5.4%
[919]	11/7/2019	0.3159	0.2758	14.5%
[920]	11/8/2019	0.2907	0.2706	7.4%
[921]	11/9/2019	0.2819	0.2746	2.7%
[922]	11/10/2019	0.2844	0.2769	2.7%
[923]	11/11/2019	0.2811	0.2693	4.4%
[924]	11/12/2019	0.2763	0.2673	3.4%
[925]	11/13/2019	0.2755	0.2704	1.9%
[926]	11/14/2019	0.2727	0.2634	3.5%
[927]	11/15/2019	0.2692	0.2523	6.7%
[928]	11/16/2019	0.2644	0.2591	2.0%
[929]	11/17/2019	0.2665	0.2595	2.7%
[930]	11/18/2019	0.2636	0.2407	9.5%
[931]	11/19/2019	0.2566	0.2431	5.6%
[932]	11/20/2019	0.2588	0.2483	4.2%
[933]	11/21/2019	0.2533	0.2354	7.6%
[934]	11/22/2019	0.2459	0.2223	10.6%
[935]	11/23/2019	0.2362	0.2266	4.2%
[936]	11/24/2019	0.2355	0.2195	7.3%
[937]	11/25/2019	0.2255	0.2015	11.9%
[938]	11/26/2019	0.2222	0.2140	3.8%
[939]	11/27/2019	0.2302	0.2132	8.0%
[940]	11/28/2019	0.2300	0.2230	3.1%
[941]	11/29/2019	0.2328	0.2233	4.3%
[942]	11/30/2019	0.2325	0.2243	3.7%
[943]	12/1/2019	0.2263	0.2192	3.2%
[944]	12/2/2019	0.2270	0.2178	4.2%
[945]	12/3/2019	0.2224	0.2184	1.8%
[946]	12/4/2019	0.2258	0.2101	7.5%
[947]	12/5/2019	0.2267	0.2124	6.7%
[948]	12/6/2019	0.2277	0.2196	3.7%
[949]	12/7/2019	0.2289	0.2240	2.2%
[950]	12/8/2019	0.2331	0.2249	3.6%
[951]	12/9/2019	0.2313	0.2215	4.4%
[952]	12/10/2019	0.2255	0.2192	2.9%
[953]	12/11/2019	0.2239	0.2201	1.7%
[954]	12/12/2019	0.2231	0.2168	2.9%
[955]	12/13/2019	0.2211	0.2152	2.7%
[956]	12/14/2019	0.2211	0.2149	2.9%
[957]	12/15/2019	0.2196	0.2149	2.2%
[958]	12/16/2019	0.2178	0.2030	7.3%
[959]	12/17/2019	0.2056	0.1784	15.2%
[960]	12/18/2019	0.2006	0.1752	14.5%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[961]	12/19/2019	0.1974	0.1849	6.8%
[962]	12/20/2019	0.1984	0.1839	7.9%
[963]	12/21/2019	0.1965	0.1905	3.1%
[964]	12/22/2019	0.1974	0.1909	3.4%
[965]	12/23/2019	0.1991	0.1886	5.6%
[966]	12/24/2019	0.1937	0.1875	3.3%
[967]	12/25/2019	0.1916	0.1864	2.8%
[968]	12/26/2019	0.1942	0.1874	3.6%
[969]	12/27/2019	0.1901	0.1845	3.0%
[970]	12/28/2019	0.1947	0.1897	2.6%
[971]	12/29/2019	0.1984	0.1910	3.9%
[972]	12/30/2019	0.1979	0.1916	3.3%
[973]	12/31/2019	0.1937	0.1896	2.2%
[974]	1/1/2020	0.1950	0.1918	1.7%
[975]	1/2/2020	0.1931	0.1856	4.0%
[976]	1/3/2020	0.1940	0.1845	5.1%
[977]	1/4/2020	0.1937	0.1912	1.3%
[978]	1/5/2020	0.1974	0.1930	2.3%
[979]	1/6/2020	0.2238	0.1943	15.2%
[980]	1/7/2020	0.2256	0.2074	8.8%
[981]	1/8/2020	0.2185	0.2031	7.6%
[982]	1/9/2020	0.2087	0.2013	3.7%
[983]	1/10/2020	0.2129	0.2002	6.3%
[984]	1/11/2020	0.2199	0.2086	5.4%
[985]	1/12/2020	0.2169	0.2097	3.4%
[986]	1/13/2020	0.2155	0.2098	2.7%
[987]	1/14/2020	0.2447	0.2114	15.8%
[988]	1/15/2020	0.2430	0.2261	7.5%
[989]	1/16/2020	0.2347	0.2221	5.7%
[990]	1/17/2020	0.2441	0.2265	7.8%
[991]	1/18/2020	0.2546	0.2316	9.9%
[992]	1/19/2020	0.2514	0.2270	10.7%
[993]	1/20/2020	0.2363	0.2240	5.5%
[994]	1/21/2020	0.2414	0.2298	5.0%
[995]	1/22/2020	0.2393	0.2321	3.1%
[996]	1/23/2020	0.2370	0.2206	7.4%
[997]	1/24/2020	0.2260	0.2134	5.9%
[998]	1/25/2020	0.2225	0.2162	2.9%
[999]	1/26/2020	0.2321	0.2179	6.5%
[1000]	1/27/2020	0.2336	0.2259	3.4%
[1001]	1/28/2020	0.2411	0.2304	4.6%
[1002]	1/29/2020	0.2418	0.2339	3.4%
[1003]	1/30/2020	0.2465	0.2303	7.0%
[1004]	1/31/2020	0.2447	0.2335	4.8%
[1005]	2/1/2020	0.2429	0.2368	2.6%
[1006]	2/2/2020	0.2613	0.2357	10.9%
[1007]	2/3/2020	0.2596	0.2467	5.2%
[1008]	2/4/2020	0.2700	0.2470	9.3%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[1009]	2/5/2020	0.2815	0.2661	5.8%
[1010]	2/6/2020	0.2877	0.2698	6.6%
[1011]	2/7/2020	0.2878	0.2772	3.8%
[1012]	2/8/2020	0.2820	0.2638	6.9%
[1013]	2/9/2020	0.2894	0.2766	4.6%
[1014]	2/10/2020	0.2832	0.2675	5.9%
[1015]	2/11/2020	0.2843	0.2671	6.4%
[1016]	2/12/2020	0.3096	0.2818	9.9%
[1017]	2/13/2020	0.3396	0.3002	13.1%
[1018]	2/14/2020	0.3393	0.3106	9.2%
[1019]	2/15/2020	0.3469	0.2951	17.6%
[1020]	2/16/2020	0.3189	0.2683	18.9%
[1021]	2/17/2020	0.2950	0.2695	9.5%
[1022]	2/18/2020	0.3031	0.2758	9.9%
[1023]	2/19/2020	0.3090	0.2707	14.1%
[1024]	2/20/2020	0.2815	0.2623	7.3%
[1025]	2/21/2020	0.2794	0.2688	3.9%
[1026]	2/22/2020	0.2785	0.2707	2.9%
[1027]	2/23/2020	0.2854	0.2753	3.7%
[1028]	2/24/2020	0.2851	0.2640	8.0%
[1029]	2/25/2020	0.2710	0.2511	7.9%
[1030]	2/26/2020	0.2550	0.2229	14.4%
[1031]	2/27/2020	0.2477	0.2238	10.7%
[1032]	2/28/2020	0.2441	0.2281	7.0%
[1033]	2/29/2020	0.2427	0.2275	6.7%
[1034]	3/1/2020	0.2364	0.2242	5.4%
[1035]	3/2/2020	0.2420	0.2259	7.1%
[1036]	3/3/2020	0.2399	0.2299	4.3%
[1037]	3/4/2020	0.2384	0.2305	3.4%
[1038]	3/5/2020	0.2435	0.2346	3.8%
[1039]	3/6/2020	0.2465	0.2386	3.3%
[1040]	3/7/2020	0.2457	0.2354	4.4%
[1041]	3/8/2020	0.2367	0.2009	17.8%
[1042]	3/9/2020	0.2117	0.1984	6.7%
[1043]	3/10/2020	0.2161	0.2054	5.2%
[1044]	3/11/2020	0.2138	0.1994	7.2%
[1045]	3/12/2020	0.2100	0.1306	60.8%
[1046]	3/13/2020	0.1687	0.1138	48.2%
[1047]	3/14/2020	0.1607	0.1434	12.1%
[1048]	3/15/2020	0.1648	0.1445	14.0%
[1049]	3/16/2020	0.1528	0.1282	19.2%
[1050]	3/17/2020	0.1528	0.1402	9.0%
[1051]	3/18/2020	0.1498	0.1404	6.7%
[1052]	3/19/2020	0.1730	0.1448	19.5%
[1053]	3/20/2020	0.1758	0.1455	20.8%
[1054]	3/21/2020	0.1621	0.1519	6.7%
[1055]	3/22/2020	0.1619	0.1463	10.7%
[1056]	3/23/2020	0.1619	0.1450	11.7%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[1057]	3/24/2020	0.1647	0.1576	4.5%
[1058]	3/25/2020	0.1657	0.1574	5.3%
[1059]	3/26/2020	0.1780	0.1600	11.3%
[1060]	3/27/2020	0.1879	0.1697	10.7%
[1061]	3/28/2020	0.1802	0.1665	8.2%
[1062]	3/29/2020	0.1770	0.1622	9.1%
[1063]	3/30/2020	0.1758	0.1624	8.3%
[1064]	3/31/2020	0.1784	0.1706	4.6%
[1065]	4/1/2020	0.1764	0.1683	4.8%
[1066]	4/2/2020	0.1869	0.1746	7.0%
[1067]	4/3/2020	0.1831	0.1761	4.0%
[1068]	4/4/2020	0.1843	0.1777	3.7%
[1069]	4/5/2020	0.1825	0.1765	3.4%
[1070]	4/6/2020	0.1987	0.1794	10.8%
[1071]	4/7/2020	0.2054	0.1901	8.0%
[1072]	4/8/2020	0.2031	0.1915	6.1%
[1073]	4/9/2020	0.2025	0.1940	4.4%
[1074]	4/10/2020	0.1990	0.1817	9.5%
[1075]	4/11/2020	0.1925	0.1853	3.9%
[1076]	4/12/2020	0.1963	0.1865	5.3%
[1077]	4/13/2020	0.1899	0.1811	4.9%
[1078]	4/14/2020	0.1897	0.1839	3.2%
[1079]	4/15/2020	0.1901	0.1802	5.5%
[1080]	4/16/2020	0.1935	0.1739	11.3%
[1081]	4/17/2020	0.1920	0.1865	2.9%
[1082]	4/18/2020	0.1973	0.1886	4.6%
[1083]	4/19/2020	0.1964	0.1885	4.2%
[1084]	4/20/2020	0.1949	0.1782	9.4%
[1085]	4/21/2020	0.1869	0.1814	3.0%
[1086]	4/22/2020	0.1900	0.1822	4.3%
[1087]	4/23/2020	0.1995	0.1857	7.4%
[1088]	4/24/2020	0.1970	0.1922	2.5%
[1089]	4/25/2020	0.1974	0.1918	2.9%
[1090]	4/26/2020	0.1977	0.1923	2.8%
[1091]	4/27/2020	0.1999	0.1944	2.8%
[1092]	4/28/2020	0.2185	0.1948	12.2%
[1093]	4/29/2020	0.2311	0.2141	7.9%
[1094]	4/30/2020	0.2359	0.2085	13.1%
[1095]	5/1/2020	0.2244	0.2115	6.1%
[1096]	5/2/2020	0.2257	0.2155	4.7%
[1097]	5/3/2020	0.2267	0.2159	5.0%
[1098]	5/4/2020	0.2207	0.2074	6.4%
[1099]	5/5/2020	0.2225	0.2134	4.3%
[1100]	5/6/2020	0.2228	0.2105	5.8%
[1101]	5/7/2020	0.2210	0.2100	5.2%
[1102]	5/8/2020	0.2223	0.2145	3.6%
[1103]	5/9/2020	0.2250	0.2158	4.3%
[1104]	5/10/2020	0.2165	0.1810	19.6%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[1105]	5/11/2020	0.2003	0.1853	8.1%
[1106]	5/12/2020	0.2000	0.1914	4.5%
[1107]	5/13/2020	0.2043	0.1958	4.3%
[1108]	5/14/2020	0.2064	0.1986	3.9%
[1109]	5/15/2020	0.2048	0.1948	5.1%
[1110]	5/16/2020	0.2020	0.1965	2.8%
[1111]	5/17/2020	0.2047	0.1989	2.9%
[1112]	5/18/2020	0.2081	0.2012	3.4%
[1113]	5/19/2020	0.2067	0.2008	2.9%
[1114]	5/20/2020	0.2062	0.1974	4.5%
[1115]	5/21/2020	0.2031	0.1892	7.3%
[1116]	5/22/2020	0.2025	0.1919	5.5%
[1117]	5/23/2020	0.2023	0.1980	2.2%
[1118]	5/24/2020	0.2013	0.1928	4.4%
[1119]	5/25/2020	0.1973	0.1855	6.4%
[1120]	5/26/2020	0.1970	0.1914	2.9%
[1121]	5/27/2020	0.2001	0.1936	3.4%
[1122]	5/28/2020	0.2010	0.1948	3.2%
[1123]	5/29/2020	0.2029	0.1962	3.4%
[1124]	5/30/2020	0.2076	0.1960	5.9%
[1125]	5/31/2020	0.2135	0.2012	6.1%
[1126]	6/1/2020	0.2127	0.2013	5.7%
[1127]	6/2/2020	0.2145	0.1975	8.6%
[1128]	6/3/2020	0.2047	0.2009	1.9%
[1129]	6/4/2020	0.2071	0.2009	3.1%
[1130]	6/5/2020	0.2056	0.2013	2.1%
[1131]	6/6/2020	0.2047	0.2012	1.7%
[1132]	6/7/2020	0.2049	0.1992	2.9%
[1133]	6/8/2020	0.2044	0.2001	2.1%
[1134]	6/9/2020	0.2052	0.1857	10.5%
[1135]	6/10/2020	0.2039	0.2004	1.7%
[1136]	6/11/2020	0.2037	0.1845	10.4%
[1137]	6/12/2020	0.1950	0.1867	4.4%
[1138]	6/13/2020	0.1938	0.1908	1.6%
[1139]	6/14/2020	0.1925	0.1887	2.0%
[1140]	6/15/2020	0.1936	0.1822	6.3%
[1141]	6/16/2020	0.1941	0.1900	2.2%
[1142]	6/17/2020	0.1984	0.1884	5.3%
[1143]	6/18/2020	0.1931	0.1881	2.7%
[1144]	6/19/2020	0.1900	0.1864	1.9%
[1145]	6/20/2020	0.1888	0.1848	2.2%
[1146]	6/21/2020	0.1884	0.1856	1.5%
[1147]	6/22/2020	0.1905	0.1856	2.6%
[1148]	6/23/2020	0.1905	0.1883	1.2%
[1149]	6/24/2020	0.1901	0.1815	4.7%
[1150]	6/25/2020	0.1839	0.1785	3.0%
[1151]	6/26/2020	0.1867	0.1783	4.7%
[1152]	6/27/2020	0.1833	0.1702	7.7%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[1153]	6/28/2020	0.1798	0.1733	3.8%
[1154]	6/29/2020	0.1792	0.1750	2.4%
[1155]	6/30/2020	0.1778	0.1748	1.7%
[1156]	7/1/2020	0.1783	0.1737	2.6%
[1157]	7/2/2020	0.1773	0.1723	2.9%
[1158]	7/3/2020	0.1786	0.1745	2.3%
[1159]	7/4/2020	0.1797	0.1761	2.0%
[1160]	7/5/2020	0.1788	0.1742	2.6%
[1161]	7/6/2020	0.1892	0.1766	7.1%
[1162]	7/7/2020	0.1896	0.1832	3.5%
[1163]	7/8/2020	0.2068	0.1840	12.4%
[1164]	7/9/2020	0.2115	0.1971	7.3%
[1165]	7/10/2020	0.2027	0.1930	5.0%
[1166]	7/11/2020	0.2047	0.1981	3.3%
[1167]	7/12/2020	0.2039	0.1980	3.0%
[1168]	7/13/2020	0.2064	0.1930	6.9%
[1169]	7/14/2020	0.1998	0.1951	2.4%
[1170]	7/15/2020	0.1998	0.1964	1.7%
[1171]	7/16/2020	0.1974	0.1889	4.5%
[1172]	7/17/2020	0.1978	0.1913	3.4%
[1173]	7/18/2020	0.2021	0.1939	4.2%
[1174]	7/19/2020	0.2020	0.1960	3.1%
[1175]	7/20/2020	0.2002	0.1923	4.1%
[1176]	7/21/2020	0.2010	0.1941	3.6%
[1177]	7/22/2020	0.2048	0.1963	4.3%
[1178]	7/23/2020	0.2103	0.2019	4.2%
[1179]	7/24/2020	0.2087	0.2022	3.2%
[1180]	7/25/2020	0.2178	0.2040	6.8%
[1181]	7/26/2020	0.2253	0.2131	5.7%
[1182]	7/27/2020	0.2295	0.2100	9.3%
[1183]	7/28/2020	0.2349	0.2176	8.0%
[1184]	7/29/2020	0.2502	0.2297	8.9%
[1185]	7/30/2020	0.2497	0.2372	5.3%
[1186]	7/31/2020	0.2607	0.2421	7.7%
[1187]	8/1/2020	0.2980	0.2561	16.4%
[1188]	8/2/2020	0.3262	0.2596	25.7%
[1189]	8/3/2020	0.3198	0.2844	12.4%
[1190]	8/4/2020	0.3191	0.2921	9.2%
[1191]	8/5/2020	0.3083	0.2910	5.9%
[1192]	8/6/2020	0.3112	0.2977	4.5%
[1193]	8/7/2020	0.3102	0.2826	9.8%
[1194]	8/8/2020	0.2989	0.2903	3.0%
[1195]	8/9/2020	0.2986	0.2825	5.7%
[1196]	8/10/2020	0.3005	0.2880	4.3%
[1197]	8/11/2020	0.3074	0.2707	13.6%
[1198]	8/12/2020	0.2874	0.2723	5.5%
[1199]	8/13/2020	0.2959	0.2725	8.6%
[1200]	8/14/2020	0.3076	0.2903	6.0%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[1201]	8/15/2020	0.3054	0.2921	4.6%
[1202]	8/16/2020	0.3047	0.2924	4.2%
[1203]	8/17/2020	0.3274	0.2974	10.1%
[1204]	8/18/2020	0.3218	0.2995	7.4%
[1205]	8/19/2020	0.3061	0.2794	9.6%
[1206]	8/20/2020	0.2947	0.2847	3.5%
[1207]	8/21/2020	0.2959	0.2781	6.4%
[1208]	8/22/2020	0.2867	0.2734	4.9%
[1209]	8/23/2020	0.2880	0.2775	3.8%
[1210]	8/24/2020	0.2920	0.2825	3.4%
[1211]	8/25/2020	0.2896	0.2704	7.1%
[1212]	8/26/2020	0.2809	0.2743	2.4%
[1213]	8/27/2020	0.2785	0.2551	9.2%
[1214]	8/28/2020	0.2734	0.2602	5.1%
[1215]	8/29/2020	0.2771	0.2690	3.0%
[1216]	8/30/2020	0.2839	0.2740	3.6%
[1217]	8/31/2020	0.2845	0.2784	2.2%
[1218]	9/1/2020	0.2990	0.2763	8.2%
[1219]	9/2/2020	0.3039	0.2667	13.9%
[1220]	9/3/2020	0.2767	0.2403	15.1%
[1221]	9/4/2020	0.2657	0.2414	10.1%
[1222]	9/5/2020	0.2595	0.2316	12.0%
[1223]	9/6/2020	0.2461	0.2301	7.0%
[1224]	9/7/2020	0.2429	0.2301	5.6%
[1225]	9/8/2020	0.2437	0.2313	5.4%
[1226]	9/9/2020	0.2430	0.2332	4.2%
[1227]	9/10/2020	0.2488	0.2391	4.1%
[1228]	9/11/2020	0.2446	0.2370	3.2%
[1229]	9/12/2020	0.2487	0.2403	3.5%
[1230]	9/13/2020	0.2534	0.2379	6.5%
[1231]	9/14/2020	0.2491	0.2393	4.1%
[1232]	9/15/2020	0.2492	0.2424	2.8%
[1233]	9/16/2020	0.2511	0.2346	7.0%
[1234]	9/17/2020	0.2583	0.2462	4.9%
[1235]	9/18/2020	0.2552	0.2464	3.6%
[1236]	9/19/2020	0.2548	0.2474	3.0%
[1237]	9/20/2020	0.2512	0.2427	3.5%
[1238]	9/21/2020	0.2480	0.2295	8.1%
[1239]	9/22/2020	0.2345	0.2298	2.0%
[1240]	9/23/2020	0.2352	0.2207	6.6%
[1241]	9/24/2020	0.2338	0.2196	6.5%
[1242]	9/25/2020	0.2449	0.2297	6.6%
[1243]	9/26/2020	0.2455	0.2381	3.1%
[1244]	9/27/2020	0.2448	0.2376	3.0%
[1245]	9/28/2020	0.2484	0.2398	3.6%
[1246]	9/29/2020	0.2466	0.2385	3.4%
[1247]	9/30/2020	0.2428	0.2377	2.1%
[1248]	10/1/2020	0.2445	0.2340	4.5%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[1249]	10/2/2020	0.2393	0.2288	4.6%
[1250]	10/3/2020	0.2350	0.2328	0.9%
[1251]	10/4/2020	0.2501	0.2318	7.9%
[1252]	10/5/2020	0.2543	0.2466	3.1%
[1253]	10/6/2020	0.2593	0.2406	7.8%
[1254]	10/7/2020	0.2513	0.2410	4.3%
[1255]	10/8/2020	0.2535	0.2422	4.7%
[1256]	10/9/2020	0.2567	0.2497	2.8%
[1257]	10/10/2020	0.2601	0.2531	2.8%
[1258]	10/11/2020	0.2584	0.2535	1.9%
[1259]	10/12/2020	0.2584	0.2493	3.7%
[1260]	10/13/2020	0.2600	0.2528	2.8%
[1261]	10/14/2020	0.2585	0.2463	5.0%
[1262]	10/15/2020	0.2503	0.2433	2.9%
[1263]	10/16/2020	0.2480	0.2380	4.2%
[1264]	10/17/2020	0.2432	0.2389	1.8%
[1265]	10/18/2020	0.2437	0.2402	1.5%
[1266]	10/19/2020	0.2496	0.2403	3.9%
[1267]	10/20/2020	0.2503	0.2417	3.6%
[1268]	10/21/2020	0.2558	0.2429	5.3%
[1269]	10/22/2020	0.2639	0.2514	5.0%
[1270]	10/23/2020	0.2595	0.2504	3.6%
[1271]	10/24/2020	0.2579	0.2528	2.0%
[1272]	10/25/2020	0.2574	0.2516	2.3%
[1273]	10/26/2020	0.2592	0.2438	6.3%
[1274]	10/27/2020	0.2541	0.2478	2.5%
[1275]	10/28/2020	0.2567	0.2446	4.9%
[1276]	10/29/2020	0.2472	0.2399	3.0%
[1277]	10/30/2020	0.2442	0.2319	5.3%
[1278]	10/31/2020	0.2438	0.2378	2.5%
[1279]	11/1/2020	0.2414	0.2368	1.9%
[1280]	11/2/2020	0.2448	0.2332	5.0%
[1281]	11/3/2020	0.2434	0.2290	6.3%
[1282]	11/4/2020	0.2406	0.2326	3.4%
[1283]	11/5/2020	0.2475	0.2328	6.3%
[1284]	11/6/2020	0.2616	0.2455	6.6%
[1285]	11/7/2020	0.2675	0.2449	9.2%
[1286]	11/8/2020	0.2571	0.2478	3.8%
[1287]	11/9/2020	0.2562	0.2459	4.2%
[1288]	11/10/2020	0.2643	0.2485	6.4%
[1289]	11/11/2020	0.2601	0.2527	2.9%
[1290]	11/12/2020	0.2583	0.2526	2.3%
[1291]	11/13/2020	0.2660	0.2541	4.7%
[1292]	11/14/2020	0.2776	0.2617	6.1%
[1293]	11/15/2020	0.2771	0.2643	4.8%
[1294]	11/16/2020	0.2899	0.2677	8.3%
[1295]	11/17/2020	0.3053	0.2877	6.1%
[1296]	11/18/2020	0.3083	0.2827	9.1%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[1297]	11/19/2020	0.3069	0.2842	8.0%
[1298]	11/20/2020	0.3312	0.2973	11.4%
[1299]	11/21/2020	0.4694	0.3298	42.3%
[1300]	11/22/2020	0.4961	0.4064	22.1%
[1301]	11/23/2020	0.6338	0.4320	46.7%
[1302]	11/24/2020	0.8433	0.5699	48.0%
[1303]	11/25/2020	0.7223	0.5803	24.5%
[1304]	11/26/2020	0.6517	0.4588	42.0%
[1305]	11/27/2020	0.5879	0.5042	16.6%
[1306]	11/28/2020	0.6494	0.5399	20.3%
[1307]	11/29/2020	0.6371	0.5834	9.2%
[1308]	11/30/2020	0.6797	0.5997	13.3%
[1309]	12/1/2020	0.6806	0.5843	16.5%
[1310]	12/2/2020	0.6370	0.5950	7.1%
[1311]	12/3/2020	0.6426	0.6155	4.4%
[1312]	12/4/2020	0.6346	0.5433	16.8%
[1313]	12/5/2020	0.5964	0.5487	8.7%
[1314]	12/6/2020	0.6289	0.5799	8.4%
[1315]	12/7/2020	0.6240	0.5909	5.6%
[1316]	12/8/2020	0.6106	0.5502	11.0%
[1317]	12/9/2020	0.6049	0.5039	20.0%
[1318]	12/10/2020	0.5884	0.5526	6.5%
[1319]	12/11/2020	0.5926	0.5265	12.6%
[1320]	12/12/2020	0.5616	0.4858	15.6%
[1321]	12/13/2020	0.5279	0.4865	8.5%
[1322]	12/14/2020	0.5187	0.4894	6.0%
[1323]	12/15/2020	0.5072	0.4647	9.1%
[1324]	12/16/2020	0.5753	0.4377	31.4%
[1325]	12/17/2020	0.6587	0.5387	22.3%
[1326]	12/18/2020	0.6136	0.5511	11.3%
[1327]	12/19/2020	0.6041	0.5666	6.6%
[1328]	12/20/2020	0.5866	0.5311	10.5%
[1329]	12/21/2020	0.5693	0.4995	14.0%
[1330]	12/22/2020	0.5219	0.4012	30.1%
[1331]	12/23/2020	0.4479	0.2138	109.5%
[1332]	12/24/2020	0.3813	0.2406	58.5%
[1333]	12/25/2020	0.3839	0.2798	37.2%
[1334]	12/26/2020	0.3266	0.2832	15.3%
[1335]	12/27/2020	0.3101	0.2661	16.5%
[1336]	12/28/2020	0.3090	0.2339	32.1%
[1337]	12/29/2020	0.2481	0.1710	45.1%
[1338]	12/30/2020	0.2361	0.1920	23.0%
[1339]	12/31/2020	0.2290	0.2053	11.5%
[1340]	1/1/2021	0.2507	0.2163	15.9%
[1341]	1/2/2021	0.2387	0.2117	12.8%
[1342]	1/3/2021	0.2381	0.2156	10.4%
[1343]	1/4/2021	0.2623	0.2167	21.0%
[1344]	1/5/2021	0.2425	0.2181	11.2%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[1345]	1/6/2021	0.2786	0.2220	25.5%
[1346]	1/7/2021	0.3702	0.2459	50.5%
[1347]	1/8/2021	0.3461	0.2852	21.4%
[1348]	1/9/2021	0.3404	0.3059	11.3%
[1349]	1/10/2021	0.3674	0.2862	28.4%
[1350]	1/11/2021	0.3160	0.2529	25.0%
[1351]	1/12/2021	0.3098	0.2777	11.6%
[1352]	1/13/2021	0.3100	0.2848	8.8%
[1353]	1/14/2021	0.3089	0.2834	9.0%
[1354]	1/15/2021	0.3028	0.2616	15.7%
[1355]	1/16/2021	0.2966	0.2753	7.7%
[1356]	1/17/2021	0.2856	0.2686	6.3%
[1357]	1/18/2021	0.2887	0.2717	6.3%
[1358]	1/19/2021	0.3293	0.2841	15.9%
[1359]	1/20/2021	0.3118	0.2795	11.6%
[1360]	1/21/2021	0.3081	0.2601	18.5%
[1361]	1/22/2021	0.2784	0.2404	15.8%
[1362]	1/23/2021	0.2839	0.2659	6.8%
[1363]	1/24/2021	0.2780	0.2686	3.5%
[1364]	1/25/2021	0.2852	0.2670	6.8%
[1365]	1/26/2021	0.2711	0.2583	5.0%
[1366]	1/27/2021	0.2689	0.2440	10.2%
[1367]	1/28/2021	0.2706	0.2478	9.2%
[1368]	1/29/2021	0.3166	0.2604	21.6%
[1369]	1/30/2021	0.5152	0.2785	85.0%
[1370]	1/31/2021	0.5095	0.3886	31.1%
[1371]	2/1/2021	0.7557	0.3603	109.7%
[1372]	2/2/2021	0.4115	0.3411	20.6%
[1373]	2/3/2021	0.4191	0.3730	12.4%
[1374]	2/4/2021	0.4812	0.3805	26.5%
[1375]	2/5/2021	0.4717	0.4250	11.0%
[1376]	2/6/2021	0.4568	0.4261	7.2%
[1377]	2/7/2021	0.4513	0.3922	15.1%
[1378]	2/8/2021	0.4694	0.4132	13.6%
[1379]	2/9/2021	0.4908	0.4493	9.2%
[1380]	2/10/2021	0.5417	0.4489	20.7%
[1381]	2/11/2021	0.5355	0.5005	7.0%
[1382]	2/12/2021	0.6200	0.5197	19.3%
[1383]	2/13/2021	0.6430	0.5428	18.5%
[1384]	2/14/2021	0.6403	0.5621	13.9%
[1385]	2/15/2021	0.6040	0.5105	18.3%
[1386]	2/16/2021	0.5800	0.4828	20.1%
[1387]	2/17/2021	0.5571	0.4939	12.8%
[1388]	2/18/2021	0.5598	0.5198	7.7%
[1389]	2/19/2021	0.5804	0.5142	12.9%
[1390]	2/20/2021	0.5824	0.4741	22.8%
[1391]	2/21/2021	0.5582	0.5041	10.7%
[1392]	2/22/2021	0.6485	0.5153	25.8%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[1393]	2/23/2021	0.5706	0.3676	55.2%
[1394]	2/24/2021	0.4993	0.4518	10.5%
[1395]	2/25/2021	0.4823	0.4256	13.3%
[1396]	2/26/2021	0.4506	0.4120	9.4%
[1397]	2/27/2021	0.4585	0.4274	7.3%
[1398]	2/28/2021	0.4386	0.3937	11.4%
[1399]	3/1/2021	0.4545	0.4133	10.0%
[1400]	3/2/2021	0.4555	0.4219	8.0%
[1401]	3/3/2021	0.4678	0.4310	8.5%
[1402]	3/4/2021	0.4942	0.4361	13.3%
[1403]	3/5/2021	0.4843	0.4466	8.4%
[1404]	3/6/2021	0.4706	0.4498	4.6%
[1405]	3/7/2021	0.4689	0.4571	2.6%
[1406]	3/8/2021	0.4894	0.4551	7.5%
[1407]	3/9/2021	0.4873	0.4716	3.3%
[1408]	3/10/2021	0.4884	0.4564	7.0%
[1409]	3/11/2021	0.4642	0.4409	5.3%
[1410]	3/12/2021	0.4645	0.4241	9.5%
[1411]	3/13/2021	0.4664	0.4326	7.8%
[1412]	3/14/2021	0.4614	0.4376	5.4%
[1413]	3/15/2021	0.4478	0.4233	5.8%
[1414]	3/16/2021	0.5192	0.4278	21.4%
[1415]	3/17/2021	0.4818	0.4540	6.1%
[1416]	3/18/2021	0.4894	0.4661	5.0%
[1417]	3/19/2021	0.4749	0.4593	3.4%
[1418]	3/20/2021	0.5497	0.4649	18.2%
[1419]	3/21/2021	0.5457	0.4957	10.1%
[1420]	3/22/2021	0.5999	0.5018	19.5%
[1421]	3/23/2021	0.5965	0.5381	10.9%
[1422]	3/24/2021	0.5626	0.4535	24.1%
[1423]	3/25/2021	0.5248	0.4574	14.7%
[1424]	3/26/2021	0.5758	0.5112	12.6%
[1425]	3/27/2021	0.5742	0.5342	7.5%
[1426]	3/28/2021	0.5601	0.5396	3.8%
[1427]	3/29/2021	0.5699	0.5436	4.8%
[1428]	3/30/2021	0.5862	0.5592	4.8%
[1429]	3/31/2021	0.5756	0.5293	8.7%
[1430]	4/1/2021	0.5942	0.5491	8.2%
[1431]	4/2/2021	0.6089	0.5657	7.6%
[1432]	4/3/2021	0.6416	0.5743	11.7%
[1433]	4/4/2021	0.6353	0.5673	12.0%
[1434]	4/5/2021	0.9379	0.6197	51.3%
[1435]	4/6/2021	1.1160	0.8108	37.6%
[1436]	4/7/2021	1.1070	0.8577	29.1%
[1437]	4/8/2021	1.0710	0.9020	18.7%
[1438]	4/9/2021	1.0830	0.9823	10.3%
[1439]	4/10/2021	1.3960	1.0070	38.6%
[1440]	4/11/2021	1.4940	1.3060	14.4%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[1441]	4/12/2021	1.4720	1.3190	11.6%
[1442]	4/13/2021	1.8870	1.4190	33.0%
[1443]	4/14/2021	1.9650	1.5690	25.2%
[1444]	4/15/2021	1.8840	1.6520	14.0%
[1445]	4/16/2021	1.8100	1.4220	27.3%
[1446]	4/17/2021	1.7420	1.5330	13.6%
[1447]	4/18/2021	1.5630	1.1510	35.8%
[1448]	4/19/2021	1.5320	1.2540	22.2%
[1449]	4/20/2021	1.4470	1.1840	22.2%
[1450]	4/21/2021	1.4640	1.2780	14.6%
[1451]	4/22/2021	1.4180	1.1010	28.8%
[1452]	4/23/2021	1.1960	0.8991	33.0%
[1453]	4/24/2021	1.1720	1.0240	14.5%
[1454]	4/25/2021	1.1570	0.9473	22.1%
[1455]	4/26/2021	1.3730	1.0180	34.9%
[1456]	4/27/2021	1.4630	1.3330	9.8%
[1457]	4/28/2021	1.4480	1.2860	12.6%
[1458]	4/29/2021	1.4190	1.3290	6.8%
[1459]	4/30/2021	1.6390	1.3760	19.1%
[1460]	5/1/2021	1.6650	1.5250	9.2%
[1461]	5/2/2021	1.6570	1.5280	8.4%
[1462]	5/3/2021	1.6220	1.4810	9.5%
[1463]	5/4/2021	1.5580	1.3260	17.5%
[1464]	5/5/2021	1.6240	1.3710	18.5%
[1465]	5/6/2021	1.7620	1.5330	14.9%
[1466]	5/7/2021	1.6910	1.5090	12.1%
[1467]	5/8/2021	1.6270	1.5430	5.4%
[1468]	5/9/2021	1.5960	1.4360	11.1%
[1469]	5/10/2021	1.6270	1.2380	31.4%
[1470]	5/11/2021	1.4890	1.3580	9.6%
[1471]	5/12/2021	1.5470	1.2450	24.3%
[1472]	5/13/2021	1.3890	1.2100	14.8%
[1473]	5/14/2021	1.4490	1.3240	9.4%
[1474]	5/15/2021	1.5830	1.3240	19.6%
[1475]	5/16/2021	1.6110	1.3470	19.6%
[1476]	5/17/2021	1.5630	1.3290	17.6%
[1477]	5/18/2021	1.7030	1.4730	15.6%
[1478]	5/19/2021	1.6430	0.9433	74.2%
[1479]	5/20/2021	1.2670	0.9274	36.6%
[1480]	5/21/2021	1.2190	0.8702	40.1%
[1481]	5/22/2021	1.0170	0.8225	23.6%
[1482]	5/23/2021	0.9675	0.6519	48.4%
[1483]	5/24/2021	0.9972	0.7567	31.8%
[1484]	5/25/2021	1.0580	0.8835	19.8%
[1485]	5/26/2021	1.0690	0.9492	12.6%
[1486]	5/27/2021	1.0430	0.9350	11.6%
[1487]	5/28/2021	0.9845	0.8475	16.2%
[1488]	5/29/2021	0.9405	0.7948	18.3%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[1489]	5/30/2021	0.9328	0.7992	16.7%
[1490]	5/31/2021	1.0490	0.8813	19.0%
[1491]	6/1/2021	1.0990	0.9769	12.5%
[1492]	6/2/2021	1.0480	0.9804	6.9%
[1493]	6/3/2021	1.0770	1.0080	6.8%
[1494]	6/4/2021	1.0460	0.9173	14.0%
[1495]	6/5/2021	0.9974	0.8960	11.3%
[1496]	6/6/2021	0.9491	0.9180	3.4%
[1497]	6/7/2021	0.9744	0.8433	15.5%
[1498]	6/8/2021	0.8860	0.7860	12.7%
[1499]	6/9/2021	0.9218	0.8312	10.9%
[1500]	6/10/2021	0.9288	0.8533	8.8%
[1501]	6/11/2021	0.8789	0.8347	5.3%
[1502]	6/12/2021	0.8472	0.8066	5.0%
[1503]	6/13/2021	0.8881	0.8181	8.6%
[1504]	6/14/2021	0.9290	0.8634	7.6%
[1505]	6/15/2021	0.9015	0.8580	5.1%
[1506]	6/16/2021	0.8728	0.8262	5.6%
[1507]	6/17/2021	0.8612	0.8237	4.6%
[1508]	6/18/2021	0.8445	0.7712	9.5%
[1509]	6/19/2021	0.8057	0.7573	6.4%
[1510]	6/20/2021	0.7844	0.6992	12.2%
[1511]	6/21/2021	0.7798	0.6053	28.8%
[1512]	6/22/2021	0.6494	0.5119	26.9%
[1513]	6/23/2021	0.6648	0.5234	27.0%
[1514]	6/24/2021	0.6913	0.6171	12.0%
[1515]	6/25/2021	0.6888	0.6025	14.3%
[1516]	6/26/2021	0.6323	0.5823	8.6%
[1517]	6/27/2021	0.6522	0.5972	9.2%
[1518]	6/28/2021	0.6563	0.6250	5.0%
[1519]	6/29/2021	0.7322	0.6424	14.0%
[1520]	6/30/2021	0.7135	0.6486	10.0%
[1521]	7/1/2021	0.7060	0.6444	9.6%
[1522]	7/2/2021	0.6672	0.6334	5.3%
[1523]	7/3/2021	0.6844	0.6438	6.3%
[1524]	7/4/2021	0.7090	0.6661	6.4%
[1525]	7/5/2021	0.6960	0.6453	7.9%
[1526]	7/6/2021	0.6795	0.6520	4.2%
[1527]	7/7/2021	0.6736	0.6506	3.5%
[1528]	7/8/2021	0.6541	0.6116	6.9%
[1529]	7/9/2021	0.6448	0.5925	8.8%
[1530]	7/10/2021	0.6485	0.6134	5.7%
[1531]	7/11/2021	0.6437	0.6176	4.2%
[1532]	7/12/2021	0.6571	0.6183	6.3%
[1533]	7/13/2021	0.6419	0.6091	5.4%
[1534]	7/14/2021	0.6251	0.5876	6.4%
[1535]	7/15/2021	0.6264	0.5887	6.4%
[1536]	7/16/2021	0.6186	0.5881	5.2%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[1537]	7/17/2021	0.5977	0.5657	5.7%
[1538]	7/18/2021	0.6013	0.5731	4.9%
[1539]	7/19/2021	0.5892	0.5543	6.3%
[1540]	7/20/2021	0.5692	0.5171	10.1%
[1541]	7/21/2021	0.5839	0.5202	12.2%
[1542]	7/22/2021	0.6029	0.5620	7.3%
[1543]	7/23/2021	0.6101	0.5759	5.9%
[1544]	7/24/2021	0.6207	0.6008	3.3%
[1545]	7/25/2021	0.6120	0.5917	3.4%
[1546]	7/26/2021	0.6780	0.6059	11.9%
[1547]	7/27/2021	0.6527	0.6137	6.4%
[1548]	7/28/2021	0.7526	0.6317	19.1%
[1549]	7/29/2021	0.7657	0.6984	9.6%
[1550]	7/30/2021	0.7691	0.7138	7.7%
[1551]	7/31/2021	0.7587	0.7383	2.8%
[1552]	8/1/2021	0.7775	0.7081	9.8%
[1553]	8/2/2021	0.7731	0.7162	7.9%
[1554]	8/3/2021	0.7445	0.7015	6.1%
[1555]	8/4/2021	0.7394	0.6966	6.1%
[1556]	8/5/2021	0.7390	0.7018	5.3%
[1557]	8/6/2021	0.7527	0.7233	4.1%
[1558]	8/7/2021	0.8183	0.7422	10.3%
[1559]	8/8/2021	0.8399	0.7731	8.6%
[1560]	8/9/2021	0.8279	0.7603	8.9%
[1561]	8/10/2021	0.8621	0.8005	7.7%
[1562]	8/11/2021	1.0870	0.8487	28.1%
[1563]	8/12/2021	1.0440	0.9227	13.1%
[1564]	8/13/2021	1.0960	0.9526	15.1%
[1565]	8/14/2021	1.3100	1.0720	22.2%
[1566]	8/15/2021	1.3480	1.2300	9.6%
[1567]	8/16/2021	1.3290	1.1480	15.8%
[1568]	8/17/2021	1.2240	1.0870	12.6%
[1569]	8/18/2021	1.1940	1.0520	13.5%
[1570]	8/19/2021	1.2350	1.0930	13.0%
[1571]	8/20/2021	1.2890	1.2000	7.4%
[1572]	8/21/2021	1.2830	1.2060	6.4%
[1573]	8/22/2021	1.2560	1.1820	6.3%
[1574]	8/23/2021	1.3030	1.2110	7.6%
[1575]	8/24/2021	1.2640	1.1270	12.2%
[1576]	8/25/2021	1.1780	1.1090	6.2%
[1577]	8/26/2021	1.1860	1.0650	11.4%
[1578]	8/27/2021	1.1920	1.0520	13.3%
[1579]	8/28/2021	1.1970	1.1340	5.6%
[1580]	8/29/2021	1.1680	1.1140	4.8%
[1581]	8/30/2021	1.1500	1.0960	4.9%
[1582]	8/31/2021	1.2420	1.0930	13.6%
[1583]	9/1/2021	1.2380	1.1600	6.7%
[1584]	9/2/2021	1.2950	1.2230	5.9%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[1585]	9/3/2021	1.3220	1.2220	8.2%
[1586]	9/4/2021	1.2970	1.2370	4.9%
[1587]	9/5/2021	1.3120	1.2380	6.0%
[1588]	9/6/2021	1.4150	1.3070	8.3%
[1589]	9/7/2021	1.3920	0.9589	45.2%
[1590]	9/8/2021	1.1480	1.0170	12.9%
[1591]	9/9/2021	1.1500	1.0760	6.9%
[1592]	9/10/2021	1.2430	1.0310	20.6%
[1593]	9/11/2021	1.1120	1.0520	5.7%
[1594]	9/12/2021	1.1260	1.0590	6.3%
[1595]	9/13/2021	1.1260	1.0270	9.6%
[1596]	9/14/2021	1.0980	1.0580	3.8%
[1597]	9/15/2021	1.1300	1.0800	4.6%
[1598]	9/16/2021	1.1300	1.0670	5.9%
[1599]	9/17/2021	1.1030	1.0520	4.8%
[1600]	9/18/2021	1.0940	1.0580	3.4%
[1601]	9/19/2021	1.0840	1.0400	4.2%
[1602]	9/20/2021	1.0500	0.8775	19.7%
[1603]	9/21/2021	0.9590	0.8593	11.6%
[1604]	9/22/2021	1.0080	0.8690	16.0%
[1605]	9/23/2021	1.0170	0.9693	4.9%
[1606]	9/24/2021	1.0030	0.8880	13.0%
[1607]	9/25/2021	0.9567	0.9184	4.2%
[1608]	9/26/2021	0.9570	0.8936	7.1%
[1609]	9/27/2021	0.9816	0.9213	6.5%
[1610]	9/28/2021	0.9431	0.8918	5.8%
[1611]	9/29/2021	0.9910	0.8878	11.6%
[1612]	9/30/2021	0.9635	0.9228	4.4%
[1613]	10/1/2021	1.0660	0.9452	12.8%
[1614]	10/2/2021	1.0720	1.0090	6.2%
[1615]	10/3/2021	1.0890	1.0230	6.5%
[1616]	10/4/2021	1.0600	1.0080	5.2%
[1617]	10/5/2021	1.0880	1.0390	4.7%
[1618]	10/6/2021	1.1060	1.0200	8.4%
[1619]	10/7/2021	1.0940	1.0440	4.8%
[1620]	10/8/2021	1.0920	1.0520	3.8%
[1621]	10/9/2021	1.2080	1.0580	14.2%
[1622]	10/10/2021	1.2290	1.1280	9.0%
[1623]	10/11/2021	1.1810	1.1060	6.8%
[1624]	10/12/2021	1.1370	1.0660	6.7%
[1625]	10/13/2021	1.1380	1.0760	5.8%
[1626]	10/14/2021	1.1570	1.1180	3.5%
[1627]	10/15/2021	1.1640	1.0950	6.3%
[1628]	10/16/2021	1.1850	1.1300	4.9%
[1629]	10/17/2021	1.1400	1.0230	11.4%
[1630]	10/18/2021	1.1060	1.0650	3.8%
[1631]	10/19/2021	1.1000	1.0670	3.1%
[1632]	10/20/2021	1.1530	1.0880	6.0%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[1633]	10/21/2021	1.1640	1.0860	7.2%
[1634]	10/22/2021	1.1270	1.0750	4.8%
[1635]	10/23/2021	1.1020	1.0770	2.3%
[1636]	10/24/2021	1.0960	1.0540	4.0%
[1637]	10/25/2021	1.1030	1.0790	2.2%
[1638]	10/26/2021	1.1590	1.0920	6.1%
[1639]	10/27/2021	1.1250	0.9559	17.7%
[1640]	10/28/2021	1.0810	0.9819	10.1%
[1641]	10/29/2021	1.0910	1.0540	3.5%
[1642]	10/30/2021	1.1160	1.0620	5.1%
[1643]	10/31/2021	1.1530	1.0700	7.8%
[1644]	11/1/2021	1.1320	1.0720	5.6%
[1645]	11/2/2021	1.1470	1.0870	5.5%
[1646]	11/3/2021	1.2350	1.1280	9.5%
[1647]	11/4/2021	1.2560	1.1650	7.8%
[1648]	11/5/2021	1.2020	1.1340	6.0%
[1649]	11/6/2021	1.1770	1.1010	6.9%
[1650]	11/7/2021	1.2370	1.1470	7.8%
[1651]	11/8/2021	1.2950	1.2200	6.1%
[1652]	11/9/2021	1.2880	1.2260	5.1%
[1653]	11/10/2021	1.3480	1.1260	19.7%
[1654]	11/11/2021	1.2530	1.1780	6.4%
[1655]	11/12/2021	1.2330	1.1560	6.7%
[1656]	11/13/2021	1.2030	1.1680	3.0%
[1657]	11/14/2021	1.1990	1.1690	2.6%
[1658]	11/15/2021	1.2200	1.1670	4.5%
[1659]	11/16/2021	1.1720	1.0450	12.2%
[1660]	11/17/2021	1.1130	1.0610	4.9%
[1661]	11/18/2021	1.1590	1.0180	13.9%
[1662]	11/19/2021	1.1030	1.0190	8.2%
[1663]	11/20/2021	1.1020	1.0640	3.6%
[1664]	11/21/2021	1.0990	1.0580	3.9%
[1665]	11/22/2021	1.0710	1.0280	4.2%
[1666]	11/23/2021	1.0730	1.0210	5.1%
[1667]	11/24/2021	1.0730	1.0080	6.4%
[1668]	11/25/2021	1.0640	1.0230	4.0%
[1669]	11/26/2021	1.0470	0.9134	14.6%
[1670]	11/27/2021	0.9659	0.9349	3.3%
[1671]	11/28/2021	0.9694	0.8867	9.3%
[1672]	11/29/2021	1.0030	0.9647	4.0%
[1673]	11/30/2021	1.0300	0.9713	6.0%
[1674]	12/1/2021	1.0180	0.9811	3.8%
[1675]	12/2/2021	0.9905	0.9566	3.5%
[1676]	12/3/2021	0.9844	0.8978	9.6%
[1677]	12/4/2021	0.9247	0.6081	52.1%
[1678]	12/5/2021	0.8625	0.7728	11.6%
[1679]	12/6/2021	0.8309	0.7504	10.7%
[1680]	12/7/2021	0.8457	0.8059	4.9%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[1681]	12/8/2021	0.8840	0.8052	9.8%
[1682]	12/9/2021	0.9336	0.8333	12.0%
[1683]	12/10/2021	0.8823	0.7938	11.1%
[1684]	12/11/2021	0.8440	0.7857	7.4%
[1685]	12/12/2021	0.8565	0.8100	5.7%
[1686]	12/13/2021	0.8444	0.7615	10.9%
[1687]	12/14/2021	0.8215	0.7734	6.2%
[1688]	12/15/2021	0.8398	0.7781	7.9%
[1689]	12/16/2021	0.8364	0.8038	4.1%
[1690]	12/17/2021	0.8320	0.7766	7.1%
[1691]	12/18/2021	0.8342	0.7918	5.4%
[1692]	12/19/2021	0.8483	0.8207	3.4%
[1693]	12/20/2021	0.9144	0.8257	10.7%
[1694]	12/21/2021	0.9609	0.8533	12.6%
[1695]	12/22/2021	0.9728	0.9245	5.2%
[1696]	12/23/2021	1.0160	0.9382	8.3%
[1697]	12/24/2021	0.9969	0.8984	11.0%
[1698]	12/25/2021	0.9343	0.8999	3.8%
[1699]	12/26/2021	0.9330	0.9060	3.0%
[1700]	12/27/2021	0.9553	0.9154	4.4%
[1701]	12/28/2021	0.9269	0.8466	9.5%
[1702]	12/29/2021	0.8642	0.8117	6.5%
[1703]	12/30/2021	0.8584	0.8033	6.9%
[1704]	12/31/2021	0.8535	0.8034	6.2%
[1705]	1/1/2022	0.8559	0.8292	3.2%
[1706]	1/2/2022	0.8652	0.8378	3.3%
[1707]	1/3/2022	0.8592	0.8217	4.6%
[1708]	1/4/2022	0.8450	0.8152	3.7%
[1709]	1/5/2022	0.8364	0.7126	17.4%
[1710]	1/6/2022	0.7905	0.7392	6.9%
[1711]	1/7/2022	0.7800	0.7291	7.0%
[1712]	1/8/2022	0.7762	0.7236	7.3%
[1713]	1/9/2022	0.7667	0.7387	3.8%
[1714]	1/10/2022	0.7586	0.6984	8.6%
[1715]	1/11/2022	0.7759	0.7309	6.2%
[1716]	1/12/2022	0.8074	0.7577	6.6%
[1717]	1/13/2022	0.8023	0.7612	5.4%
[1718]	1/14/2022	0.7903	0.7522	5.1%
[1719]	1/15/2022	0.7897	0.7687	2.7%
[1720]	1/16/2022	0.7845	0.7687	2.1%
[1721]	1/17/2022	0.7804	0.7505	4.0%
[1722]	1/18/2022	0.7685	0.7362	4.4%
[1723]	1/19/2022	0.7534	0.7239	4.1%
[1724]	1/20/2022	0.7620	0.7162	6.4%
[1725]	1/21/2022	0.7287	0.6138	18.7%
[1726]	1/22/2022	0.6533	0.5507	18.6%
[1727]	1/23/2022	0.6351	0.5906	7.5%
[1728]	1/24/2022	0.6290	0.5536	13.6%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[1729]	1/25/2022	0.6236	0.5877	6.1%
[1730]	1/26/2022	0.6586	0.6059	8.7%
[1731]	1/27/2022	0.6244	0.5898	5.9%
[1732]	1/28/2022	0.6135	0.5918	3.7%
[1733]	1/29/2022	0.6254	0.6095	2.6%
[1734]	1/30/2022	0.6234	0.5980	4.2%
[1735]	1/31/2022	0.6244	0.5806	7.5%
[1736]	2/1/2022	0.6309	0.6118	3.1%
[1737]	2/2/2022	0.6316	0.5957	6.0%
[1738]	2/3/2022	0.6108	0.5894	3.6%
[1739]	2/4/2022	0.6592	0.6045	9.0%
[1740]	2/5/2022	0.6867	0.6511	5.5%
[1741]	2/6/2022	0.6875	0.6603	4.1%
[1742]	2/7/2022	0.8389	0.6725	24.7%
[1743]	2/8/2022	0.9145	0.8045	13.7%
[1744]	2/9/2022	0.9154	0.8452	8.3%
[1745]	2/10/2022	0.8974	0.8234	9.0%
[1746]	2/11/2022	0.8333	0.7513	10.9%
[1747]	2/12/2022	0.8520	0.7478	13.9%
[1748]	2/13/2022	0.8470	0.7933	6.8%
[1749]	2/14/2022	0.8127	0.7802	4.2%
[1750]	2/15/2022	0.8586	0.7968	7.8%
[1751]	2/16/2022	0.8533	0.8096	5.4%
[1752]	2/17/2022	0.8450	0.7545	12.0%
[1753]	2/18/2022	0.8051	0.7573	6.3%
[1754]	2/19/2022	0.8493	0.7713	10.1%
[1755]	2/20/2022	0.8233	0.7673	7.3%
[1756]	2/21/2022	0.8016	0.6969	15.0%
[1757]	2/22/2022	0.7268	0.6723	8.1%
[1758]	2/23/2022	0.7440	0.6932	7.3%
[1759]	2/24/2022	0.7154	0.6227	14.9%
[1760]	2/25/2022	0.7789	0.6833	14.0%
[1761]	2/26/2022	0.7944	0.7412	7.2%
[1762]	2/27/2022	0.7672	0.7050	8.8%
[1763]	2/28/2022	0.7922	0.7089	11.8%
[1764]	3/1/2022	0.8032	0.7584	5.9%
[1765]	3/2/2022	0.7848	0.7572	3.6%
[1766]	3/3/2022	0.7886	0.7344	7.4%
[1767]	3/4/2022	0.7534	0.6966	8.2%
[1768]	3/5/2022	0.7683	0.7054	8.9%
[1769]	3/6/2022	0.7587	0.7228	5.0%
[1770]	3/7/2022	0.7536	0.7035	7.1%
[1771]	3/8/2022	0.7302	0.7135	2.3%
[1772]	3/9/2022	0.7745	0.7201	7.6%
[1773]	3/10/2022	0.7789	0.7233	7.7%
[1774]	3/11/2022	0.8128	0.7253	12.1%
[1775]	3/12/2022	0.8487	0.7795	8.9%
[1776]	3/13/2022	0.8044	0.7535	6.8%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[1777]	3/14/2022	0.7774	0.7456	4.3%
[1778]	3/15/2022	0.7765	0.7418	4.7%
[1779]	3/16/2022	0.7944	0.7582	4.8%
[1780]	3/17/2022	0.8018	0.7833	2.4%
[1781]	3/18/2022	0.8006	0.7767	3.1%
[1782]	3/19/2022	0.8269	0.7921	4.4%
[1783]	3/20/2022	0.8222	0.7961	3.3%
[1784]	3/21/2022	0.8543	0.7882	8.4%
[1785]	3/22/2022	0.8646	0.8286	4.3%
[1786]	3/23/2022	0.8457	0.8177	3.4%
[1787]	3/24/2022	0.8501	0.8274	2.7%
[1788]	3/25/2022	0.8459	0.8210	3.0%
[1789]	3/26/2022	0.8350	0.8209	1.7%
[1790]	3/27/2022	0.8581	0.8285	3.6%
[1791]	3/28/2022	0.9118	0.8542	6.7%
[1792]	3/29/2022	0.8853	0.8442	4.9%
[1793]	3/30/2022	0.8715	0.8465	3.0%
[1794]	3/31/2022	0.8731	0.7893	10.6%
[1795]	4/1/2022	0.8340	0.8076	3.3%
[1796]	4/2/2022	0.8500	0.8195	3.7%
[1797]	4/3/2022	0.8521	0.8153	4.5%
[1798]	4/4/2022	0.8433	0.8054	4.7%
[1799]	4/5/2022	0.8360	0.8151	2.6%
[1800]	4/6/2022	0.8184	0.7569	8.1%
[1801]	4/7/2022	0.7905	0.7529	5.0%
[1802]	4/8/2022	0.7935	0.7473	6.2%
[1803]	4/9/2022	0.7664	0.7538	1.7%
[1804]	4/10/2022	0.7731	0.7529	2.7%
[1805]	4/11/2022	0.7555	0.6815	10.9%
[1806]	4/12/2022	0.7255	0.6921	4.8%
[1807]	4/13/2022	0.7250	0.7018	3.3%
[1808]	4/14/2022	0.7408	0.7086	4.5%
[1809]	4/15/2022	0.7968	0.7261	9.7%
[1810]	4/16/2022	0.7994	0.7665	4.3%
[1811]	4/17/2022	0.7858	0.7484	5.0%
[1812]	4/18/2022	0.7694	0.7279	5.7%
[1813]	4/19/2022	0.7816	0.7589	3.0%
[1814]	4/20/2022	0.7752	0.7425	4.4%
[1815]	4/21/2022	0.7682	0.7201	6.7%
[1816]	4/22/2022	0.7385	0.7141	3.4%
[1817]	4/23/2022	0.7266	0.7030	3.4%
[1818]	4/24/2022	0.7117	0.6948	2.4%
[1819]	4/25/2022	0.6995	0.6460	8.3%
[1820]	4/26/2022	0.7063	0.6284	12.4%
[1821]	4/27/2022	0.6622	0.6368	4.0%
[1822]	4/28/2022	0.6571	0.6335	3.7%
[1823]	4/29/2022	0.6466	0.5996	7.8%
[1824]	4/30/2022	0.6283	0.5680	10.6%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[1825]	5/1/2022	0.6121	0.5761	6.2%
[1826]	5/2/2022	0.6304	0.5984	5.3%
[1827]	5/3/2022	0.6276	0.5961	5.3%
[1828]	5/4/2022	0.6499	0.6042	7.6%
[1829]	5/5/2022	0.6569	0.5808	13.1%
[1830]	5/6/2022	0.6158	0.5879	4.7%
[1831]	5/7/2022	0.6041	0.5695	6.1%
[1832]	5/8/2022	0.5825	0.5578	4.4%
[1833]	5/9/2022	0.5782	0.4737	22.1%
[1834]	5/10/2022	0.5364	0.4729	13.4%
[1835]	5/11/2022	0.5223	0.3655	42.9%
[1836]	5/12/2022	0.4277	0.3344	27.9%
[1837]	5/13/2022	0.4638	0.3805	21.9%
[1838]	5/14/2022	0.4400	0.3952	11.3%
[1839]	5/15/2022	0.4490	0.4144	8.3%
[1840]	5/16/2022	0.4476	0.4084	9.6%
[1841]	5/17/2022	0.4394	0.4168	5.4%
[1842]	5/18/2022	0.4418	0.4034	9.5%
[1843]	5/19/2022	0.4233	0.3916	8.1%
[1844]	5/20/2022	0.4392	0.4011	9.5%
[1845]	5/21/2022	0.4175	0.4030	3.6%
[1846]	5/22/2022	0.4245	0.4096	3.6%
[1847]	5/23/2022	0.4281	0.3998	7.1%
[1848]	5/24/2022	0.4130	0.3903	5.8%
[1849]	5/25/2022	0.4126	0.3942	4.7%
[1850]	5/26/2022	0.4103	0.3748	9.5%
[1851]	5/27/2022	0.4023	0.3758	7.1%
[1852]	5/28/2022	0.3882	0.3801	2.1%
[1853]	5/29/2022	0.3901	0.3790	2.9%
[1854]	5/30/2022	0.4194	0.3865	8.5%
[1855]	5/31/2022	0.4329	0.4063	6.5%
[1856]	6/1/2022	0.4260	0.3888	9.6%
[1857]	6/2/2022	0.4067	0.3902	4.2%
[1858]	6/3/2022	0.4099	0.3832	7.0%
[1859]	6/4/2022	0.3937	0.3843	2.4%
[1860]	6/5/2022	0.3993	0.3893	2.6%
[1861]	6/6/2022	0.4089	0.3939	3.8%
[1862]	6/7/2022	0.4167	0.3839	8.5%
[1863]	6/8/2022	0.4099	0.3947	3.9%
[1864]	6/9/2022	0.4035	0.3964	1.8%
[1865]	6/10/2022	0.4112	0.3761	9.3%
[1866]	6/11/2022	0.3881	0.3555	9.2%
[1867]	6/12/2022	0.3649	0.3394	7.5%
[1868]	6/13/2022	0.3500	0.3009	16.3%
[1869]	6/14/2022	0.3262	0.2934	11.2%
[1870]	6/15/2022	0.3461	0.2990	15.8%
[1871]	6/16/2022	0.3470	0.3070	13.0%
[1872]	6/17/2022	0.3390	0.3103	9.2%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[1873]	6/18/2022	0.3258	0.2868	13.6%
[1874]	6/19/2022	0.3321	0.2979	11.5%
[1875]	6/20/2022	0.3282	0.3130	4.9%
[1876]	6/21/2022	0.3368	0.3182	5.8%
[1877]	6/22/2022	0.3291	0.3184	3.4%
[1878]	6/23/2022	0.3363	0.3210	4.8%
[1879]	6/24/2022	0.3868	0.3351	15.4%
[1880]	6/25/2022	0.3736	0.3540	5.5%
[1881]	6/26/2022	0.3746	0.3575	4.8%
[1882]	6/27/2022	0.3666	0.3479	5.4%
[1883]	6/28/2022	0.3554	0.3351	6.1%
[1884]	6/29/2022	0.3409	0.3198	6.6%
[1885]	6/30/2022	0.3329	0.3058	8.9%
[1886]	7/1/2022	0.3353	0.3088	8.6%
[1887]	7/2/2022	0.3175	0.3091	2.7%
[1888]	7/3/2022	0.3253	0.3082	5.5%
[1889]	7/4/2022	0.3291	0.3142	4.7%
[1890]	7/5/2022	0.3304	0.3127	5.7%
[1891]	7/6/2022	0.3335	0.3194	4.4%
[1892]	7/7/2022	0.3452	0.3262	5.8%
[1893]	7/8/2022	0.3580	0.3353	6.8%
[1894]	7/9/2022	0.3474	0.3391	2.4%
[1895]	7/10/2022	0.3448	0.3162	9.0%
[1896]	7/11/2022	0.3287	0.3108	5.8%
[1897]	7/12/2022	0.3177	0.3073	3.4%
[1898]	7/13/2022	0.3253	0.3027	7.5%
[1899]	7/14/2022	0.3336	0.3123	6.8%
[1900]	7/15/2022	0.3484	0.3272	6.5%
[1901]	7/16/2022	0.3560	0.3314	7.4%
[1902]	7/17/2022	0.3611	0.3412	5.8%
[1903]	7/18/2022	0.3697	0.3429	7.8%
[1904]	7/19/2022	0.3767	0.3515	7.2%
[1905]	7/20/2022	0.3817	0.3576	6.7%
[1906]	7/21/2022	0.3684	0.3487	5.6%
[1907]	7/22/2022	0.3714	0.3542	4.9%
[1908]	7/23/2022	0.3626	0.3498	3.7%
[1909]	7/24/2022	0.3668	0.3561	3.0%
[1910]	7/25/2022	0.3601	0.3351	7.5%
[1911]	7/26/2022	0.3385	0.3257	3.9%
[1912]	7/27/2022	0.3597	0.3303	8.9%
[1913]	7/28/2022	0.3792	0.3493	8.6%
[1914]	7/29/2022	0.3798	0.3596	5.6%
[1915]	7/30/2022	0.4098	0.3633	12.8%
[1916]	7/31/2022	0.3988	0.3784	5.4%
[1917]	8/1/2022	0.3858	0.3712	3.9%
[1918]	8/2/2022	0.3938	0.3667	7.4%
[1919]	8/3/2022	0.3774	0.3629	4.0%
[1920]	8/4/2022	0.3747	0.3643	2.9%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[1921]	8/5/2022	0.3781	0.3671	3.0%
[1922]	8/6/2022	0.3780	0.3705	2.0%
[1923]	8/7/2022	0.3770	0.3683	2.4%
[1924]	8/8/2022	0.3845	0.3714	3.5%
[1925]	8/9/2022	0.3800	0.3609	5.3%
[1926]	8/10/2022	0.3815	0.3584	6.4%
[1927]	8/11/2022	0.3858	0.3771	2.3%
[1928]	8/12/2022	0.3805	0.3701	2.8%
[1929]	8/13/2022	0.3874	0.3765	2.9%
[1930]	8/14/2022	0.3920	0.3739	4.8%
[1931]	8/15/2022	0.3848	0.3660	5.1%
[1932]	8/16/2022	0.3783	0.3668	3.1%
[1933]	8/17/2022	0.3921	0.3680	6.5%
[1934]	8/18/2022	0.3813	0.3692	3.3%
[1935]	8/19/2022	0.3705	0.3315	11.8%
[1936]	8/20/2022	0.3427	0.3322	3.2%
[1937]	8/21/2022	0.3485	0.3357	3.8%
[1938]	8/22/2022	0.3800	0.3314	14.7%
[1939]	8/23/2022	0.3478	0.3325	4.6%
[1940]	8/24/2022	0.3524	0.3388	4.0%
[1941]	8/25/2022	0.3518	0.3433	2.5%
[1942]	8/26/2022	0.3710	0.3326	11.5%
[1943]	8/27/2022	0.3445	0.3284	4.9%
[1944]	8/28/2022	0.3372	0.3215	4.9%
[1945]	8/29/2022	0.3342	0.3185	4.9%
[1946]	8/30/2022	0.3356	0.3202	4.8%
[1947]	8/31/2022	0.3337	0.3231	3.3%
[1948]	9/1/2022	0.3334	0.3215	3.7%
[1949]	9/2/2022	0.3350	0.3253	3.0%
[1950]	9/3/2022	0.3344	0.3265	2.4%
[1951]	9/4/2022	0.3327	0.3275	1.6%
[1952]	9/5/2022	0.3335	0.3223	3.5%
[1953]	9/6/2022	0.3428	0.3186	7.6%
[1954]	9/7/2022	0.3385	0.3126	8.3%
[1955]	9/8/2022	0.3432	0.3282	4.6%
[1956]	9/9/2022	0.3594	0.3395	5.9%
[1957]	9/10/2022	0.3619	0.3517	2.9%
[1958]	9/11/2022	0.3601	0.3492	3.1%
[1959]	9/12/2022	0.3601	0.3480	3.5%
[1960]	9/13/2022	0.3602	0.3309	8.9%
[1961]	9/14/2022	0.3440	0.3314	3.8%
[1962]	9/15/2022	0.3427	0.3245	5.6%
[1963]	9/16/2022	0.3579	0.3215	11.3%
[1964]	9/17/2022	0.3805	0.3464	9.8%
[1965]	9/18/2022	0.3978	0.3558	11.8%
[1966]	9/19/2022	0.3929	0.3401	15.5%
[1967]	9/20/2022	0.4228	0.3702	14.2%
[1968]	9/21/2022	0.4334	0.3808	13.8%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[1969]	9/22/2022	0.4982	0.3935	26.6%
[1970]	9/23/2022	0.5582	0.4567	22.2%
[1971]	9/24/2022	0.5191	0.4717	10.0%
[1972]	9/25/2022	0.5206	0.4758	9.4%
[1973]	9/26/2022	0.5017	0.4577	9.6%
[1974]	9/27/2022	0.4872	0.4356	11.8%
[1975]	9/28/2022	0.4550	0.4174	9.0%
[1976]	9/29/2022	0.5090	0.4268	19.3%
[1977]	9/30/2022	0.4987	0.4695	6.2%
[1978]	10/1/2022	0.4863	0.4670	4.1%
[1979]	10/2/2022	0.4784	0.4440	7.7%
[1980]	10/3/2022	0.4691	0.4378	7.1%
[1981]	10/4/2022	0.4852	0.4516	7.4%
[1982]	10/5/2022	0.5009	0.4720	6.1%
[1983]	10/6/2022	0.5057	0.4886	3.5%
[1984]	10/7/2022	0.5317	0.4821	10.3%
[1985]	10/8/2022	0.5291	0.5113	3.5%
[1986]	10/9/2022	0.5468	0.5061	8.0%
[1987]	10/10/2022	0.5379	0.4947	8.7%
[1988]	10/11/2022	0.5021	0.4777	5.1%
[1989]	10/12/2022	0.4954	0.4824	2.7%
[1990]	10/13/2022	0.4894	0.4410	11.0%
[1991]	10/14/2022	0.5116	0.4784	6.9%
[1992]	10/15/2022	0.4901	0.4772	2.7%
[1993]	10/16/2022	0.4873	0.4682	4.1%
[1994]	10/17/2022	0.4820	0.4626	4.2%
[1995]	10/18/2022	0.4840	0.4532	6.8%
[1996]	10/19/2022	0.4665	0.4471	4.3%
[1997]	10/20/2022	0.4646	0.4239	9.6%
[1998]	10/21/2022	0.4618	0.4353	6.1%
[1999]	10/22/2022	0.4706	0.4564	3.1%
[2000]	10/23/2022	0.4725	0.4520	4.5%
[2001]	10/24/2022	0.4729	0.4482	5.5%
[2002]	10/25/2022	0.4725	0.4434	6.6%
[2003]	10/26/2022	0.4712	0.4564	3.2%
[2004]	10/27/2022	0.4822	0.4589	5.1%
[2005]	10/28/2022	0.4755	0.4564	4.2%
[2006]	10/29/2022	0.4837	0.4665	3.7%
[2007]	10/30/2022	0.4734	0.4539	4.3%
[2008]	10/31/2022	0.4671	0.4478	4.3%
[2009]	11/1/2022	0.4665	0.4544	2.7%
[2010]	11/2/2022	0.4658	0.4453	4.6%
[2011]	11/3/2022	0.4595	0.4489	2.4%
[2012]	11/4/2022	0.5073	0.4533	11.9%
[2013]	11/5/2022	0.5097	0.4894	4.1%
[2014]	11/6/2022	0.4946	0.4684	5.6%
[2015]	11/7/2022	0.4797	0.4594	4.4%
[2016]	11/8/2022	0.4669	0.3381	38.1%

Exhibit 3**XRP-USD Daily Price Data and Difference between Reported High and Low Prices**

	Date [a]	High [b]	Low [c]	High-Low Price Difference [d]
[2017]	11/9/2022	0.4108	0.3181	29.1%
[2018]	11/10/2022	0.4009	0.3252	23.3%
[2019]	11/11/2022	0.3972	0.3663	8.4%
[2020]	11/12/2022	0.3839	0.3594	6.8%
[2021]	11/13/2022	0.3687	0.3327	10.8%
[2022]	11/14/2022	0.3782	0.2794	35.4%
[2023]	11/15/2022	0.3962	0.3518	12.6%
[2024]	11/16/2022	0.3902	0.3612	8.0%
[2025]	11/17/2022	0.3861	0.3688	4.7%
[2026]	11/18/2022	0.3867	0.3742	3.3%
[2027]	Average over Analysis Period			9.7%

Notes and Sources:[1]-[2026]

[a] Date.

[b] 'XRP-USD_history.csv', "high".

[c] 'XRP-USD_history.csv', "low".

[d] $=([b]/[c])-1$.[2027][d] $=\text{Average}([1][d]:[2026][d])$.

EXHIBIT 53

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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
OAKLAND DIVISION

In re RIPPLE LABS INC. LITIGATION

Case No. 4:18-cv-06753-PJH

This Document Relates to:

ALL ACTIONS

**DECLARATION OF DAVID SCHWARTZ
IN SUPPORT OPPOSITION TO LEAD
PLAINTIFF'S MOTION FOR CLASS
CERTIFICATION**

DECLARATION OF DAVID
SCHWARTZ ISO OPPOSITION TO
LEAD PLAINTIFF'S MOTION FOR
CLASS CERTIFICATION

Case No. 4:18-cv-06753-PJH

1 I, David Schwartz, hereby declare as follows:

2 1. I am Chief Technology Officer of Ripple Labs Inc. ("Ripple"). I have served in
3 that role since July 2018. In that capacity, I am responsible for the security of the company's
4 XRP holdings and the company's strategic direction for development of technology. As set forth
5 below, I am one of the developers of the distributed ledger now known as the XRP Ledger.
6 Further, I have served in a technical leadership capacity for Ripple continuously since it was
7 founded in 2012. I make this declaration based on my personal knowledge and on information
8 made known to me in the course of my duties at Ripple. If called to testify, I would testify
9 competently to them.

10 2. A blockchain is a system for securely recording information. Each transaction is
11 recorded in a "block" on the digital ledger, and each block, in turn, "has a cryptographically
12 secure reference to the prior block," resulting in an immutable timeline of transactions. A
13 blockchain database is typically recorded across a network of computer systems. The distributed
14 nature of the blockchain helps make it difficult, if not impossible, for would-be bad actors to
15 alter past transactions.

16 3. The Bitcoin blockchain was launched in 2009. In 2011 and early 2012, Jed
17 McCaleb, Arthur Britto, and I developed the source code for a new alternative to the Bitcoin
18 blockchain, now known as the XRP Ledger. At the time, the Bitcoin blockchain, which relied on
19 proof-of-work verification, was the only blockchain technology known to exist. By 2012, other
20 small cryptocurrencies had copied the Bitcoin ledger's open-source code with minimal
21 alterations, but none of those deviated in any significant way from the structure of the Bitcoin
22 ledger. We intended to create a better blockchain than Bitcoin by increasing the speed of

1 transactions, reducing their cost, and minimizing energy consumption.

2 4. Upon the launch of the XRP Ledger, it was fully operational, and everyone who
3 had or received XRP could use that XRP to operate the ledger or for other uses.

4 5. No XRP was sold before the launch of the XRP Ledger in 2012. There was no
5 Initial Coin Offering for XRP. Rather, when the XRP Ledger launched, its code automatically
6 created 100 billion XRP. After the creation of XRP and the XRP Ledger Chris Larsen, McCaleb,
7 and Britto (the original recipients of XRP) formed a new corporate entity, now called Ripple, and
8 granted it 80 billion units of XRP, while retaining 20 billion among themselves. Larsen and
9 McCaleb each retained approximately nine billion; Britto retained the remaining two billion.

10 6. Ripple never owned the 20 billion XRP retained by Larsen, McCaleb, and Britto.
11 The XRP those individuals owned was their own.

12 7. The core code for the XRP Ledger was completed in June 2012. Ripple's
13 predecessor was founded later in 2012, after the core code for the XRP Ledger was already
14 completed.

15 8. Ripple does not own the Ledger. The XRP Ledger's underlying code, known as
16 "rippled," is open-source, and the Ledger is operated by an independent network of validators.
17 Anyone can use the XRP Ledger, submit transactions to the XRP Ledger, host a node to contribute
18 to the validation of transactions, propose changes to the XRP Ledger's source code, or develop
19 applications that run on the XRP Ledger. Indeed, many developers with no connection to Ripple
20 have built software products that use the XRP Ledger, such as a range of payment-processing
21 applications including micropayments.

22 9. The exact number of individuals and businesses that use or have used the XRP
23

1 Ledger or XRP is unknown and unknowable to Ripple. Transactions on the XRP Ledger do not
2 have identifying information, such as name or email address.

3
4 I declare under penalty of perjury pursuant to 28 U.S.C. § 1746 that the foregoing is true
5 and correct.

6 Executed this 3rd day of February, 2023.


7
8 
9 David Schwartz

EXHIBIT 54

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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
OAKLAND DIVISION

In re RIPPLE LABS INC. LITIGATION

Case No. 4:18-cv-06753-PJH

This Document Relates to:

ALL ACTIONS

**DECLARATION OF MONICA LONG IN
SUPPORT OF OPPOSITION TO LEAD
PLAINTIFF'S MOTION FOR CLASS
CERTIFICATION**

1 I, Monica Long, hereby declare as follows:

2 1. I am President of Ripple Labs Inc. ("Ripple"). In that capacity, I am responsible
3 for overseeing Ripple's business units, including payment solutions, liquidity solutions, and
4 developer relations. I began working at Ripple in September 2013. I have worked for Ripple
5 continuously since then. I make this declaration based on my personal knowledge and on
6 information made known to me in the course of my duties at Ripple. If called to testify, I would
7 testify competently to them.

8 2. Ripple is a privately-held financial technology company employing more than
9 700 people in 15 offices worldwide. Its current Chief Executive Officer is Bradley
10 Garlinghouse.

11 3. Cross-border payments is a roughly \$20 trillion dollar market that depends on
12 outdated technology. RippleNet is a software product developed by Ripple that allows
13 customers to clear and settle cross-border financial transactions on terms upon which the
14 customers mutually agree. RippleNet has hundreds of customers who are financial institutions
15 and payments providers (not retail customers) across more than 55 countries and six continents.
16 Ripple's customers currently send approximately \$1 billion across RippleNet every month, and
17 that number has been increasing over time.

18 4. RippleNet customers can settle cross-border transactions using fiat currency, or
19 they can opt to use a feature of RippleNet known as ODL, or "On-Demand Liquidity" (formerly
20 known as xRapid). ODL leverages the inherent properties of XRP — fast settlement, low
21 transaction costs, and more transparency — to allow cross-border transactions to settle in nearly
22 real-time rather than in a period of days that traditional means require. Customers using ODL
23 enter into negotiated, bilateral agreements with Ripple that contain provisions to minimize the
24

1 customer's financial risk of holding XRP after purchase and before the XRP is used as a bridge
2 asset to facilitate the customer's cross-border transaction. Since its launch, ODL has
3 experienced tremendous growth. To date, nearly \$15 billion in ODL payments have been made
4 — which means nearly \$15 billion in XRP has been used to facilitate cross-border transactions
5 using Ripple's products.

6 5. XRP is part of a worldwide market for currency exchanges, including trades
7 between XRP and various other currencies (both traditional fiat currencies and digital assets).
8 Before the SEC filed a lawsuit against Ripple,¹ XRP was listed on more than 200 exchanges
9 globally.

10 6. In the weeks after the SEC brought its lawsuit against Ripple, nearly every known
11 exchange accessible to United States parties de-listed XRP or blocked United States parties'
12 access to it.

13 7. Today, XRP is traded freely on at least 180 exchanges against more than 150
14 different currencies (both traditional fiat currencies and digital assets like bitcoin and ether).
15 Scores of these exchanges chose to list (and sometimes delist) XRP with no involvement from
16 Ripple. Global XRP trading markets remain active. Market data providers calculate XRP 24-
17 hour trading volumes between approximately \$600,000,000 and approaching \$1,000,000,000.

18 8. Since May 2020, essentially all of Ripple's sales of XRP have been to certain
19 ODL customers who have sourced XRP directly from Ripple to facilitate cross-border payments.

20 9. XRP has also been put to other uses. For example, it is my understanding from
21 my professional experience and my review of current and archived versions of websites that
22 several major charities — including the American Red Cross, American Cancer Society, St. Jude
23

24 ¹ *SEC v. Ripple Labs Inc. et al.*, No. 1:20-cv-10832 (S.D.N.Y.).

1 Children's Research Hospital, and Fidelity Charitable — currently do or have accepted XRP for
2 donations, at least before the SEC filed its lawsuit.

3 10. I have reviewed certain of Ripple's records regarding its distributions in order to
4 refresh my recollection of the details of certain of Ripple's giveaways. Those records indicate
5 that in its early years (roughly 2013 to 2015), Ripple gave away more than 500 million XRP to
6 early adopters and developers. Ripple stopped running that program due to abuse by scammers.

7 11. Ripple has donated more than two billion XRP, including two billion to a charity
8 and grant-writing organization known as RippleWorks. Ripple also gave away hundreds of
9 millions of XRP to developers who develop XRP-focused software through an initiative called
10 Xpring, which is now known as RippleX.

11 12. Ripple's website reports the amount of XRP it holds. According to Ripple's
12 website, as of January 22, 2023, Ripple owns less than 50 billion XRP, which is largely stored in
13 the escrow. Ripple has only about 5.8 billion in XRP outside the escrow. Over 50 billion are
14 held by persons and institutions other than (and mostly unknown to) Ripple.

15 I declare under penalty of perjury pursuant to 28 U.S.C. § 1746 that the foregoing is true
16 and correct.

17 Executed this 3rd day of February, 2023.

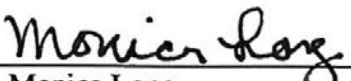
18
19 
20 Monica Long

EXHIBIT 55



UK regulatory approach to cryptoassets and stablecoins: Consultation and call for evidence

January 2021

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UK regulatory approach to cryptoassets and stablecoins: Consultation and call for evidence

January 2021

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Foreword

In 2018 the government launched a cross-authority Taskforce with the aim of exploring the impact of a rapidly developing cryptoasset market. At the time the Taskforce found that distributed ledger technology (DLT) could have a significant impact across a range of industries, with the potential to deliver real benefits for financial services. It also judged that the cryptoasset market was at an immature stage of development, and that there was limited evidence of the current generation of cryptoassets delivering benefits.

Two years on, the landscape is changing rapidly. So-called stablecoins could pave the way for faster, cheaper payments, making it easier for people to pay for things or store their money. There is also increasing evidence that DLT could have significant benefits for capital markets, potentially fundamentally changing the way they operate.

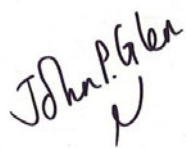
But as will always be the case with a rapidly evolving landscape, these developments could pose a range of risks to consumers and, depending on their uptake, to the stability of the financial system. That is why, at the last Budget, the Chancellor announced that we would be consulting on our response to the challenges and opportunities posed by these innovations.

The UK has long been recognised as a world-leader in financial technology. We are committed to maintaining this position. In practice, that means creating a regulatory environment in which firms can innovate, while crucially maintaining the highest regulatory standards so that people can use new technologies reliably and safely. This is essential for confidence in the financial system more broadly.

This document marks the first stage in our consultative process with industry and stakeholders on our approach. The approach will be informed by evidence of potential take-up and where the most serious risks lie. In doing so, we will take an agile, risk-led approach to regulation, rooted in the principle of 'same risk, same regulatory outcome'.

As the Chancellor recently set out, in the near-term our priority is to ensure the framework supports the safe use of stablecoins. The government will continue to actively monitor new and emerging risks as this market continues to mature. We will stand ready to take further regulatory action to ensure the market is working for the people and businesses who operate in it.

Your responses will help inform the government's approach and ensure the UK's regulatory framework is fit for the future.

A handwritten signature in black ink, appearing to read 'John P. Glen' with a stylized flourish at the end.

John Glen MP, Economic Secretary to the Treasury

Chapter 1

Cryptoassets and the current regulatory landscape

Introduction

- 1.1 Financial innovation has seen rapid change over recent years, accelerated further by the impact of Covid-19. Cryptoassets, offering new ways to transact, invest and store funds, have been part of this trend and could play an increasingly important role in the future. However, as will always be the case with a rapidly changing technological landscape, they also present new challenges and risks.
- 1.2 New and emerging forms of cryptoassets, such as stablecoins, which seek to stabilise their value, could be used as widespread means of payment, and potentially deliver improvements in cross-border transactions. At the same time, depending on scale and nature of use, these developments could pose similar financial stability and consumer risks as traditional regulated payment systems.
- 1.3 At present a large proportion of cryptoassets fall outside or are likely to fall outside the regulatory perimeter. This means they may not be subject to the same consumer protections or safeguards found in other areas of financial services and payments.¹ This may prevent benefits from being realised and exposes consumers to potential harms and, depending on prevalence and value transferred, could pose financial stability and consumer risks.
- 1.4 In light of this, and reflecting the pace of change, the Treasury's March 2020 Budget outlined two measures as part of the UK's response to cryptoassets:
 - consulting on bringing certain cryptoassets into scope of financial promotions regulation to enhance consumer protection; and
 - consulting on the broader regulatory approach to cryptoassets, including new challenges from so-called 'stablecoins'
- 1.5 HM Treasury's consultation on **cryptoasset promotions** concluded on 26 October. Further detail will be set out in due course.
- 1.6 This consultation relates to the second commitment. It seeks views on how the UK can ensure its regulatory framework is equipped to harness the benefits of new technologies, supporting innovation and competition, while mitigating risks to consumers and stability. It reflects advice from the UK's

¹ As noted by the Financial Policy Committee (FPC) in the December 2019 Financial Stability Report, "Absent additional regulation, some stablecoins held to be used for payments may not offer similar protections to central bank or commercial bank money held to be used for transactions in traditional payment systems".

joint Cryptoassets Taskforce,² which was established in 2018 with a mandate to consider the risks and benefits posed by cryptoassets and distributed ledger technology (DLT) in the UK, and to advise on the appropriate regulatory response.

- 1.7 The government proposes a staged and proportionate approach to regulation, which is sensitive to risks posed, and responsive to new developments in the market. This document represents the first stage in the consultative process and focuses on establishing a sound regulatory environment for stablecoins, where the government judges that risks and opportunities are most urgent. The government will strategically assess new and emerging risks as this market continues to mature. Future regulation of a potentially wider set of tokens and services will be informed by this analysis, taking into consideration the views of industry, consumers, and regulators.
- 1.8 The government invites views from a wide range of stakeholders, and particularly firms engaged in cryptoasset activities. If the proposals are adopted, further consultations and guidance will be issued by HM Treasury and relevant UK authorities on implementation, including specific firm requirements (see chapter 4 for further detail on next steps and how to respond).
- 1.9 The consultation element of the document is structured as follows: chapter 1 sets out the landscape for cryptoassets and their current status in UK regulation; chapter 2 outlines the government's proposed policy approach; chapter 3 sets out specific proposals with respect to cryptoassets used for payments purposes.
- 1.10 Finally, the call for evidence (chapter 4) seeks stakeholder views on a broader range of questions in relation to cryptoassets used for investment purposes and the use of DLT in financial services. In particular, it asks about the benefits and drawbacks of adopting DLT across financial markets, whether there are obstacles to its adoption, and what further actions government and regulators should consider in this space.

What are cryptoassets?

- 1.11 A cryptoasset is understood to be a digital representation of value or contractual rights that can be transferred, stored or traded electronically, and which may (though does not necessarily) utilise cryptography, distributed ledger technology or similar technology.³ The term 'token' is used interchangeably with 'cryptoasset' hereafter.

² Membership includes senior representatives from the Bank of England, Financial Conduct Authority and HM Treasury. It is also attended by the Payments Systems Regulator.

³ This description is largely aligned to definitions used in the government's proposed extension of financial promotions regulation and the UK's Money Laundering and Terrorist Financing regulations (though in contrast, does not specify that DLT and cryptography are necessary features).

1.12 Cryptoassets could fulfil a diverse set of functions, ranging from the trading of digital collectibles to raising capital for new projects. No internationally agreed taxonomy or classification of cryptoassets exists. In 2019 the Financial Conduct Authority (FCA) published its 'Guidance on cryptoassets' which described three broad categories of token in relation to how they fit within existing FCA regulation: e-money tokens, security tokens and unregulated tokens.⁴

- **e-money tokens** meet the definition of electronic money in the Electronic Money Regulations 2011 (EMRs) – broadly, digital payment instruments that store value, can be redeemed at par value, at any time and offer holders a direct claim on the issuer
- **security tokens** have characteristics akin to specified investments, like a share or a debt instrument, as set out in UK legislation.⁵ Broadly, these are likely to be tokenised, digital forms of traditional securities. As with e-money tokens, these are already within the UK's regulatory perimeter and therefore subject to FCA regulation
- **unregulated tokens** are neither e-money tokens nor security tokens and include:
 - **utility tokens**: tokens used to buy a service, or access a DLT platform – this could, for example, include access to online cloud storage; and
 - **exchange tokens**: tokens that are primarily used as a means of exchange – this includes widely known cryptoassets such as Bitcoin, Ether and XRP.

1.13 The FCA's guidance also makes clear that many tokens can take a hybrid form and fall into different categories at different points in time – for example, they may initially be used to raise capital, then later be used primarily as a means of exchange.

1.14 High volatility has been a notable characteristic of many widely known exchange tokens, making them less suitable for payment purposes and more attractive to some holders as a high-risk speculative investment. In March 2018 the UK's Financial Policy Committee (FPC) noted that 'their values are currently too volatile to be widely used as a currency or a store of value and, with transaction costs high and settlement times slow, they are an inefficient media of exchange'. The FPC also stated that 'as assets, they establish no claim on any future income streams or collateral. They have no intrinsic value beyond their currently limited potential to be adopted as money in the future, and hence could prove worthless'.

1.15 So-called 'stablecoins' are an evolution of cryptoassets, which seek to minimise volatility in value. Depending on design stablecoins can currently fall into any of the categories set out above – though are currently more likely to be unregulated exchange tokens or e-money tokens. Stablecoins aim

⁴ The definitions which underpin current payment systems regulation do not reflect the classification outlined in this section. Instead, systems are defined according to whether the arrangement facilitates the transfer of funds or money (alongside other relevant criteria). This is discussed in more detail in chapter three.

⁵ The Financial Services and Markets Act 2000 (Regulated Activities) Order 2001 (RAO)

to maintain stability in their price, typically in relation to stable assets such as fiat currency.⁶ Examples include Tether, Paxos or USD coin.

- 1.16 Design features vary, including how the stablecoin is backed or stabilised (for example, with financial assets or using an algorithm to increase or decrease the supply as needed to maintain a stable price). Other design features include the existence and nature of the token-holder's claims on any assets referenced (e.g. whether or not a holder has legal rights to assets in the reserve) and the population of users able to hold the coin.
- 1.17 A stablecoin arrangement can consist of a number of different entities in a chain, conducting activities in relation to the issuance of tokens, redemption and stabilisation of the stablecoin, the exchange of the token, and the interaction with users. Opportunities and risks vary depending on these design features, scale of uptake and intended use.
- 1.18 The FCA's classification of tokens above aimed to provide guidance on which tokens may lie within the FCA's regulatory perimeter and may be subject to its regulation. However different classification methodologies exist, for example by categorising tokens according to their economic function (for example, 'payment tokens and investment tokens'), or other relevant characteristics, such as the rights they confer to users. Classifications have also evolved in line with the changing nature of the market.
- 1.19 To provide continuity and clarity for market participants, the government proposes to maintain the FCA's broad approach to classification as far as possible. However, to reflect the proposal to bring additional tokens and associated activities into regulation (as set out in chapter 2) the government is considering whether a new category of regulated tokens may be needed – **stable tokens**.
- 1.20 The regulated category of stable tokens would refer to tokens which stabilise their value by referencing one or more assets, such as fiat currency or a commodity (i.e. those commonly known as stablecoins) and could for that reason more reliably be used as a means of exchange or store of value. The category would also include other forms of tokenised payment and settlement assets, as well as tokenised forms of central bank money. Further detail on tokens in scope is set out in chapter 3.
- 1.21 In considering this classification, the government and other Cryptoassets Taskforce authorities recognise that whilst cryptoassets are typically underpinned by DLT, stable tokens could be designed using other types of technology. **This classification is therefore agnostic on the technology underpinning its use (e.g. whether it relies on DLT or not).**
- 1.22 The government recognises that a more granular classification or taxonomy of tokens could have benefits, for example in providing clarity for consumers

⁶ The Financial Stability Board (FSB) offers the following differentiation: "Algorithm-based stablecoins: A stablecoin that purports to maintain a stable value via protocols that provide for the increase or decrease of the supply of the stablecoins in response to changes in demand; and Asset-linked stablecoin: A stablecoin that purports to maintain a stable value by referencing physical or financial assets or other crypto-assets." Treatment of algorithm-based tokens is discussed in chapter 3 (3.16)

and businesses as to what type of cryptoasset they are using and the benefits and risks that derive from it. However, given the rapidly evolving market and hybrid (sometimes fluid) nature of many tokens it is also important that any classification is future-proof and sufficiently flexible. The government invites views and responses on this issue.

Box 1.A: Questions for respondents

- 1 Do you have views on continuing to use a classification that is broadly consistent with existing guidance issued by UK authorities, supplemented with new categories where needed?
- 2 Do you have views on the proposed new regulated category of 'stable tokens'?

Actions taken by UK authorities and the government

- 1.23 Since the Cryptoassets Taskforce's 2018 report, the government and UK authorities have taken a number of actions to address risks and support innovation arising from cryptoassets, including (but not limited to):⁷
- **communicating minimum policy expectations for stablecoins (BoE, HMT)** - these have been communicated through speeches and international reports,⁸ including the Financial Stability Board (FSB) report on stablecoin regulation and the G7's global stablecoin working group report which stated that 'no global stablecoin project should begin operation until the legal, regulatory and oversight challenges and risks... are adequately addressed, through appropriate designs and by adhering to regulation that is clear and proportionate to the risks'.⁹ They have also been set out by the UK's Financial Policy Committee (see box 3A)¹⁰
 - **clarifying the regulatory perimeter (FCA)** – this sets out when tokens are likely to be a specified investment under the Financial Services and Markets Act 2000 Regulated Activities Order 2001 (RAO), including those that are a financial instrument under the second Markets in Financial Instruments Directive (MIFID II), or e-money captured under

⁷ The Ministry of Justice are also funding the Law Commission to carry out a project exploring the legal status of digital assets. Primarily, the Commission will consider the issue of possession, and will provide recommendations for reform to ensure the law is capable of accommodating digital assets. They aim to publish a consultation paper in the first half of 2021.

⁸ "Reinventing the wheel (with more automation)", speech given by Andrew Bailey at the Brookings Institution virtual event, September 2020; "It's time to talk about money", speech given by Jon Cunliffe at the LSE, February 2020; "Seizing the opportunities from digital finance", speech given by Andy Haldane at TheCityUK, November 2020; "Payments after the COVID crisis" speech given by Christina Segal-Knowles at the LSE, June 2020.

⁹ G7 Working group report on "Investigating the impact of global stablecoins", CPMI October 2019; and FSB report on "Regulation, Supervision and Oversight of Global Stablecoin Arrangements", October 2020.

¹⁰ The Bank of England's August 2020 Financial Stability Report.

the EMRs. Depending on the activity that will be undertaken, FCA authorisation or registration may be required

- **implementing the Fifth Anti-Money Laundering Directive (HMT, FCA)** – bringing custodian wallets providers and cryptoasset exchange providers into anti-money laundering (AML) and counter-terrorist financing (CTF) regulation
- **consulting on bringing a broader subset of cryptoassets within the FCA financial promotions regime (HMT)** – if taken forward, this would apply to the promotion of relevant activities in relation to qualifying cryptoassets
- **banning the sale, marketing and distribution of derivatives and exchange traded notes that reference certain types of cryptoasset to retail consumers (FCA)** – finalised rules come into force 6 January 2021, restricting the sale, marketing and distribution of contracts for difference, futures, options and exchanged-traded notes referencing unregulated, transferable cryptoassets
- **consumer warnings about cryptoasset scams (FCA)** – as well as providing guidance on how consumers can protect themselves, the FCA also publishes a warning list of known firms running scams. In May 2019, the FCA (in conjunction with Action Fraud) reported that the number of reports of cryptoasset and forex investments scams tripled in 2018/19 (note, however, rising cryptoasset usage during this period)
- **support for DLT-based services through the FCA sandbox (FCA)** - the FCA continues to support innovative financial services firms through its various initiatives. This includes its Direct Support function, which provides regulatory feedback to firms, and its Regulatory Sandbox, which offers the opportunity to test products in a live environment with FCA oversight. Particularly in the Regulatory Sandbox, DLT has been, and continues to be, the most popular technology tested, with roughly a third of all firms using it to facilitate their products and services. DLT-based solutions tested in the Sandbox include payments, tokenisation of financial instruments, Digital ID and insurance intermediation.

1.24 Building on these actions, the government judges that further regulatory adjustments are required to enable the government and authorities to meet objectives discussed below.

Chapter 2

Policy approach

Objectives, principles and UK initiatives

- 2.1 HM Treasury and other Cryptoassets Taskforce authorities have identified a series of objectives and principles to guide the government's approach to regulating cryptoassets. These are as follows:

Objectives

Protecting financial stability and market integrity. This includes maintaining the appropriate regulatory standards, ensuring infrastructure is operationally resilient and that safeguards are in place to mitigate any risks to financial stability.

Delivering robust consumer protections. This means ensuring consumers benefit from the same level of protection they would when other regulated instruments are being used for the same purpose (e.g. payments).

Promoting competition, innovation and supporting UK competitiveness. This means continuing to encourage and support UK fintech firms, and ensuring consumers and businesses have access to a variety of high-quality services and products.

Principles

Maintaining the current division of UK regulator responsibilities as far as possible and applying the principle of 'same risk, same regulatory outcome'. In doing so, the government will remain technology agnostic, while also considering whether the technology used gives rise to additional risks or equally where its use may mitigate risks. This supports the government's desire to ensure a level playing field and reduce opportunities for arbitrage. In practice, it means drawing on existing regulations and requirements insofar as they are applicable, with adjustments or additional requirements where needed to address specific characteristics or risks. The government will also seek to maintain as far as possible the current delineation of UK regulator responsibilities with respect to regulation of activities, including across the Bank of England, FCA and Payments System Regulator (PSR).

Ensuring the approach is proportionate, focussed on where risks and opportunities are most urgent or acute. UK authorities should

avoid applying disproportionate or overly burdensome regulation to entities particularly where end users are aware of risks or the activities do not give rise to financial stability risks. The government is therefore proposing to take an incremental, phased approach to regulatory adjustments (see chapter 3 for further detail on the sequencing of regulatory changes).

Ensuring the approach is agile, able to reflect international discussions and aligned to the future government approach to financial services and payments regulation. Given the cross-border nature of cryptoassets, the UK is committed to working with other jurisdictions and through the international standard-setting bodies to support harmonisation of treatment as far as is feasible. In doing so, the approach should allow for changes to reflect international discussions, including on equivalence where relevant. The government will also seek to ensure that the regulatory approach to cryptoassets coheres with the outcomes of the Payments Landscape Review and Future Regulatory Framework (FRF) Review, which are considering how the regulatory framework for financial services and payments need to adapt to be fit for the future.

- 2.2 The government recognises that there may be cases in which there is tension between different principles, and they will need to be prioritised or balanced against each other.

Box 2.A: Questions for respondents

- 3 Do you have views on the government's proposed objectives and principles for cryptoassets regulation? Do you have views on which should be prioritised, or where there may be tension between them?

Overarching approach and related UK initiatives

- 2.3 The government is proposing an approach to cryptoasset regulation under which firm requirements are designed and implemented by the independent regulators. This would involve the independent regulators using agile powers to issue rules or codes of practice, within a framework of objectives and broader considerations set by HMT and Parliament.
- 2.4 This has two key benefits: first, cryptoasset models continue to develop and evolve rapidly, and this approach allows the regime to respond to developments. The government wants to ensure the regime can keep pace and adapt as new models or innovations emerge. Second, international work is in progress to develop appropriate global regulatory standards and review existing guidance. For example, international work is underway to assess the application of Principles for Financial Market Infrastructures (PFMIs) to stablecoins. The PFMIs are standards issued by the Bank of International

Settlements' (BIS) Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO). The government wants to ensure it has the flexibility to update regulation to take account of the outcomes of this work.

- 2.5 In practice, this means that HMT will not seek to specify detailed firm requirements through legislation (and therefore has not done so in this consultation). Instead, the government aims to define the scope of the regulatory perimeter and the objectives and principles applicable under that new regime. Reflecting this, the government is seeking views on those areas only in this consultation. The UK's financial services regulators will consult on detailed firm requirements should the government adopt this approach. This could be subject to enhanced scrutiny requirements to ensure the regulators are appropriately accountable when setting firm requirements.
- 2.6 In July 2020 the government published a Call for Evidence to support a review of the UK payments landscape. The Payments Landscape Review (PLR) is taking a holistic stocktake of the payments landscape and is considering changes needed to keep pace with new innovations. The government will set out more detail in response to the PLR call for evidence shortly. Changes under consideration through this consultation on cryptoassets are intended to support and align with the government's broader approach to payments through the PLR.
- 2.7 HM Treasury and the Bank of England are continuing analytical work to evaluate the possible opportunities and risks associated with a UK central bank digital currency (CBDC), and of CBDC initiatives being undertaken elsewhere. The government welcomed the Bank of England's discussion paper in March 2020, as well as its important work with overseas central banks to share valuable experience related to CBDCs. HM Treasury and the Bank of England are now working together to consider next steps. The UK is taking a leading role in exploring this topic to understand the wide-ranging opportunities and challenges it could bring.
- 2.8 A number of other jurisdictions are considering or have implemented legislative changes to bring cryptoassets and stablecoins into regulation. Approaches across different jurisdictions vary in terms of scope and substance. HMT and UK authorities are closely monitoring developments in this space, including the European Commission's Market in Cryptoassets (MiCA) proposed regulation, which introduces a bespoke regulatory regime and applies it to a wide set of issuers and service providers. Other international approaches include outright bans or amendments to existing legislation (e.g. securities legislation) to bring tokens, and the service providers around them (e.g. exchanges, wallets), into scope.

Box 2.B: Questions for respondents

- 4 Do you agree with the approach outlined, in which the regulatory perimeter, objectives and principles are set by government and HMT, with detailed rules to follow set by the UK's independent regulators?

5 What are your views on the extent to which the UK's approach should align to those in other jurisdictions?

Chapter 3

Expanding the regulatory perimeter

The first phase of legislative changes

- 3.1 In line with the government's aim to ensure the approach to regulating cryptoassets is proportionate, and to focus on where risks and opportunities are most acute, the government has considered how best to sequence any changes. This chapter sets out the government's proposal and rationale.
- 3.2 At present, many cryptoassets and unregulated exchange tokens remain highly volatile and cannot be reliably used as a means of payment or store of value. The FCA's latest consumer research suggests that the dominant retail use case for cryptoassets is speculative investment: at present 47% of UK cryptoasset consumers said they bought cryptocurrencies 'as a gamble that could make or lose money' and 89% understood that they are not subject to regulatory protections.¹ This suggests that at present consumer awareness of risks associated with the purchase of cryptoassets is relatively high.
- 3.3 The size of the UK cryptoassets market is still relatively small, but rapidly growing. The government recognises that many firms engaging in cryptoasset activities are SMEs and start-ups. The government wants to ensure that any approach enables responsible innovation to occur, particularly where risks are well-communicated and understood. The government also wants to ensure that their use does not threaten stability and safeguards are in place to avoid their use in illicit activities.
- 3.4 The government is therefore considering an approach in which the use of currently unregulated tokens and associated activities primarily used for speculative investment purposes, such as Bitcoin, could initially remain outside the perimeter for conduct and prudential purposes. At the same time, these would be subject to more stringent regulation in relation to consumer communications via the financial promotions regime (if adopted) and AML/CTF regulation. Utility tokens - those used to access a service - would also remain outside the authorisation perimeter.
- 3.5 At the same time, the use of stablecoins is rising; in June 2020, it was reported that there was more value in transactions using stablecoins than in Bitcoin for the first time.² Stablecoins aim to hold their value, typically

¹ Cryptoasset Consumer research 2020, Research Note, 30 June 2020, <https://www.fca.org.uk/publication/research/research-note-cryptoasset-consumer-research-2020.pdf>

² <https://medium.com/akeo-tech/complete-guide-to-stablecoins-in-2020-1f37b7e11d9d>

against a reference asset, meaning they can be more reliably used as a means of exchange or store of value, though they may also be used to facilitate investment or trading activities. This is supported by FCA research which found that stablecoins are the most likely to be used as a means of payment; 27% of stablecoin owners have used them to purchase goods and services.³

3.6 The government believes that, if appropriate standards and regulation can be met, certain stablecoins would have the potential to play an important role in retail and cross-border payments (including settlement). This means they would have the potential to deliver benefits of DLT such as speed, efficiency and resilience. Some initiatives may have the potential to support financial inclusion and economic growth both domestically and on a cross-border basis. The Covid-19 pandemic has accelerated the use of digital forms of payments, which could increase the uptake of stablecoins for transactions and remittances in the future.⁴

3.7 The government believes that appropriately designed regulation can promote innovation and industry growth, enabling responsible industry actors to innovate and supporting consumer confidence. However, in the absence of appropriate regulation and oversight, stablecoins could pose a range of risks. These include:

- **risks to financial stability and market integrity:** where stablecoins are used widely as a means of payment, they may pose risks to financial stability and to the real economy. The ability of individuals and businesses to make and receive payments safely and smoothly with confidence is critical to financial stability. Disruption or outage within the stablecoin chain could lead to consumers being unable to access their money and make payments. Stablecoins could also be used to store value and, by design or use, constitute money-like instruments. Uncertainty about, or large fluctuations in, the value of the asset could give rise to similar risks to financial stability associated with the operational or financial failure of traditional payments systems. Reflecting this risk, in modern economies, private assets that function as money-like instruments are subject to high levels of protections that ensure that consumers can use them with confidence and exchange them seamlessly with other forms of privately issued money in widespread use. Most stablecoin arrangements seek to provide stability via some form of referenced asset such as a commodity or fiat currency. Depending on the nature of the reference assets and how the reserve is held and managed, the ability to provide stability and redeemability could come with additional risks (see Box 3.A for the FPC's principles for stablecoin payments chains)
- **risks to consumers:** these include, in the first instance, the risk that consumers could lose money through volatility of the value of the

³ <https://www.fca.org.uk/publication/research/research-note-cryptoasset-consumer-research-2020.pdf>

⁴ <https://www.bis.org/publ/bisbull03.pdf>

stablecoin or firm failure. Risks are likely to be increased where consumer protections are limited – for example, due to an absence, uncertainty or failure of a claim for redemption. Consumers may also not understand the product or service they are being offered and consumer data could be lost or misused. Consumer harm may also derive from models being too complex, or excessive prices, fees and charges. In addition, there are risks of fraud, financial crime, cyber-attacks or maladministration, with potential for consumer harm if services are vulnerable to operational and security risks leading to inaccessibility or inefficiencies

- **risks to competition:** some initiatives could increase competition by challenging the market dominance of incumbent financial institutions. However, due to their ability to scale, and plug into existing online services, some stablecoin arrangements could quickly achieve market dominance, providing a similar service to a regulated service despite not yet not having the same regulatory and compliance obligations. This would create an unlevel playing field.

- 3.8 The FSB's report 'Addressing the regulatory, supervisory and oversight challenges raised by "global stablecoin" arrangements' sets out ten recommendations. This includes the recommendation that authorities have the necessary tools and powers in place to comprehensively regulate stablecoin arrangements. The FPC has also communicated two regulatory expectations for systemic stablecoins and its views on the need to adjust the UK regulatory framework to support appropriate regulation of these arrangements (see box below). It is within this context, and in light of the risks and opportunities discussed above, that the government judges that there is a strong case for bringing stablecoins into the regulatory perimeter.
- 3.9 The government therefore proposes to first introduce a regulatory regime for stable tokens used as a means of payment. This would cover firms issuing stable tokens and firms providing services in relation to them, either directly or indirectly to consumers.
- 3.10 To a longer timetable, the government will consider the case for bringing a broader set of cryptoasset market actors or tokens into an authorisation regime (see chapter 4). UK authorities and the government will continue to actively monitor the market, focusing on how services and products are used and the risks they may pose to consumers. The government will also seek to ensure its approach provides flexibility to enable new activities to be brought into the perimeter in the future in an agile way, subject to appropriate consultation and scrutiny. Should new risks emerge or if presented with evidence of significant consumer harm, the government will take further action.

Box 3.A: Financial Policy Committee (FPC) principles for systemic stablecoin payment chains

In the December 2019 *Financial Stability Report*, the FPC observed that, in the future, digital tokens known as stablecoins might increasingly be used to make payments and that stablecoin-based payment chains pose additional issues for regulation. The FPC set out two expectations for stablecoin-based payment chains:

- 1: Payment chains that use stablecoins should be regulated to standards equivalent to those applied to traditional payment chains. Firms in stablecoin-based systemic payment chains that are critical to their functioning should be regulated accordingly.
- 2: Where stablecoins are used in systemic payment chains as money-like instruments they should meet standards equivalent to those expected of commercial bank money in relation to stability of value, robustness of legal claim and the ability to redeem at par in fiat.

Box 3.B: Questions for respondents

- 6 Do you agree with the government's assessment of risks and opportunities?
- 7 Do you have views on the proposed initial scope of UK cryptoasset regulation as summarised above?
- 8 Do you agree that this approach best balances the government's stated objectives and principles?

Scope of regulation and requirements

- 3.11 The activities around tokens used for payments may be similar to existing payment services such as the execution of payment transactions. However, the government also recognises that these tokens may also be used for other purposes than payments. For instance, today many are used as temporary stores of stable value for investors moving funds between cryptoassets without transitioning into fiat money.
- 3.12 Rules and requirements under the proposed regime would take relevant aspects of the UK's current approach to e-money and payments regulation, drawing on existing rules as far as possible. The main pieces of UK legislation governing payments regulation are the Electronic Money Regulations 2011 and Payments Services Regulations 2017. These provide powers to the FCA and PSR to regulate and supervise firms engaged in relevant payment activities.

- 3.13 In addition, the Banking Act 2009 and Financial Services (Banking Reform) Act 2013 provide the Bank of England with power and responsibility for regulation of systemically important payment systems and service providers to those payment systems, and the Payments Systems Regulator (PSR) with power and responsibility for regulation of payment systems, respectively. HM Treasury anticipates both organisations would need powers over any system widely used for payments, and that their approaches will follow their respective remits.
- 3.14 In addition, the approach will draw on broader elements of financial services regulation, for instance in relation to the protection of client assets, as well as specific requirements for stablecoins, such as safeguarding of the stablecoin and the means of accessing the stablecoin wallet with the associated private key.

Tokens in scope

- 3.15 The government's priority is to ensure that tokens which could reliably be used for retail or wholesale transactions are subject to appropriate regulation. The government considers that at present tokens that maintain a stable value based on their reference assets (e.g. fiat currency) are most likely to maintain a stable value and fulfil this function. Depending on legal structure and specific backing arrangements these tokens may have similar characteristics to e-money, which is subject to comprehensive requirements in UK financial services regulation.
- 3.16 **The government proposes to seek therefore to ensure that tokens which could be reliably used for retail or wholesale transactions are subject to minimum requirements and protections as part of a UK authorisation regime.** The government is considering whether those tokens deemed out of scope from these minimum requirements should be subject to restrictions with respect to marketing or promotion for use in retail or wholesale payments activity.
- 3.17 Some tokens may not neatly fall within this category. For example, so-called 'algorithmic stablecoins' seek to maintain a stable value through the use of algorithms to control supply, without any backing by a reference asset. The government judges that these tokens more closely resemble unbacked exchange tokens and may pose similar risks in relation to their ability to maintain stability of value, so may not be suitable for retail or wholesale transactions. For this reason, algorithmic stablecoins are outside the scope of the proposals for stable tokens set out in the remainder of this chapter. The government invites views on this assessment and will consider this position based on responses received.
- 3.18 For the same reason, the government proposes that security tokens (as defined in chapter 1) should be excluded from the scope of the proposals for stable tokens set out in this chapter. Utility tokens will also likely fall outside the scope of the proposals for stable tokens set out in this chapter.
- 3.19 Table 3.A sets out the tokens in scope of the government's proposed regime for stable tokens.

Table 3.A: Tokens in scope for proposed regime and payments use

Token type	Definition	In scope of first phase of legislative changes?	Rules applying
Stable tokens: Single-fiat	Value linked to a single fiat currency (GBP, USD, etc.)	Yes	FCA authorisation regime based on payments regulation (see below) Enhanced requirements if systemic thresholds met
Stable tokens: Other asset-linked	Value linked to an asset other than a single fiat currency (e.g. gold or multi-currency)	Yes	FCA authorisation regime (see below) – Specific requirements on backing asset(s) Enhanced requirements if systemic thresholds met ⁵
Unregulated exchange tokens	No backing Primarily retail speculative investments or means of exchange. May include algorithmic tokens.	No – but may be subject to regulation in future ⁶	
Unregulated utility tokens	Used to access a current or future service (e.g. access to a DLT platform), but may also be exchanged	No – but may be subject to regulation in future ⁶	
Security tokens	Meets definition of specified investment under the RAO and is subject to regulation	No – but considering whether changes may be needed to provide clarity to support use in future (see chapter 4)	Subject to existing FCA regulation

⁵ Bank regulation of systemic stable token payment systems and service providers to those systems, will be grounded in the FPC's expectations set out in Box 3A. For systemic asset-linked stable tokens this would imply significant capital and prudential requirements and other protections

⁶ If taken forward use of tokens would be subject to consumer disclosures via the financial promotions regime. Core entities facilitating their use also subject to AML/CTF regulation.

Actors, activities and requirements

- 3.20 As set out in chapter 1 a range of market actors can be involved in facilitating the use and issuance of stable tokens. Key participants or entities are likely to include:
- **issuers or systems operators**, responsible for managing the rulebook of a system, the infrastructure, burning and minting coins (among others)⁷
 - **cryptoassets exchanges**, enabling consumers to exchange tokens for fiat money or other tokens
 - **wallets**, which may provide custody of tokens and/or manage private keys. Along with exchanges, these are often the main consumer interface.
- 3.21 The government's view is that regulation would apply to the firms undertaking the following functions or activities, either in terms of establishing the rules governing the activities or operating the infrastructure in relation to these activities.
- **issuing, creating or destroying asset-linked tokens**
The activity of the token issuer in minting and burning tokens
 - **issuing, creating or destroying single fiat-linked tokens**
The activity of the token issuer in minting and burning tokens
 - **value stabilisation and reserve management**
The activity of managing the reserve assets that are backing the value of a stable token and providing custody/trust services for those assets to ensure stabilisation of the stable token
 - **validation of transactions**
The activity of authorising or verifying the validity of transactions and records
 - **access**
The activity of providing services or support to facilitate access of participants to the network or underlying infrastructure
 - **transmission of funds**
The activity of ensuring the correct and final settlement of transactions while limiting counterparty and default risk
 - **providing custody and administration of a stable token for a third party**
The activity of managing tokens on behalf of owners, including the storage of private keys

⁷ In some decentralised models there may not be a central entity responsible for issuing or burning tokens

- **executing transactions in stable tokens**

The activity of conducting transactions on behalf of another

- **exchanging tokens for fiat money and vice versa**

The activity of purchasing/exchanging a stable token with fiat money.

3.22 These are partly aligned with the stablecoin activities identified by the FSB, adding further granularity and aligning activities with those used under UK law. The government considers that many of these activities bear similarity to currently regulated payment or e-money activities (for example executing payment transactions). However, others do not currently form part of traditional payment chains and may not be captured by analogous rules under existing payments regulation but could still pose risks to consumers and stability. This includes providing custody and administration of the token, a main aspect of which is the storing and protection of the private key.

3.23 Considering the objective to manage the risks of tokens being used as a means of payment whilst supporting innovation and competition, and reflecting the activities outlined above, the government judges that the following high-level requirements would be necessary.

- **authorisation requirements with associated threshold conditions**

The requirement to be authorised prior to operating

- **prudential requirements, including capital and liquidity requirements, accounting and audit requirements**

Requirements relating to effective management of capital and liquidity, to protect consumers and financial stability

- **Requirements for the maintenance and management of a reserve of assets** – obligation to have reserve assets underlying the token's value and requirements to ensure the quality and safekeeping on those assets

- **orderly failure and insolvency requirements**

Requirements to ensure issuers and service providers are prepared for modified resolution or administration, or insolvency

- **safeguarding the token**

Requirements principally on wallets and exchanges to ensure those entities are appropriately protecting users' tokens and the privacy and security of keys to those tokens

- **systems, controls, risk management and governance**

Requirements relating to effective overall management of an issuer or service provider

- **notification and reporting**

Requirements relating to firms' disclosures to regulators and customers

- **record keeping**

Requirements relating to firms' internal record keeping processes

- **conduct requirements**
Requirements relating to the rights that firms must provide toward customers
- **financial crime requirements**
Requirements relating to proper implementation of anti-money laundering and counter-terrorist financing rules, among others
- **outsourcing requirements**
Requirements relating to safe outsourcing of key services to ensure continuous and adequate functioning
- **operational resilience, service reliability and continuity requirements**
Requirements to ensure business continuity in the event of physical, electronic, governance or other business failures
- **security requirements (including cyber and cloud)**
Requirements relating to safeguards against cyber security risks related to the technology and infrastructure used.

3.24 UK authorities are considering requirements in relation to the reserves held for stable tokens (and related innovations), particularly where they operate at systemic scale. This includes, for example, how to ensure that regulation and requirements are appropriate for the risks taken in the reserve assets where stable tokens are intended for widespread use in retail or wholesale transactions. This also involves exploring what regulation might be necessary to enable issuers of systemic stable tokens to hold reserve assets in central bank accounts, commercial bank deposits or high-quality liquid assets to meet the FPC's expectations. UK authorities will consult in due course on the impact of these options and how these options would be applied across systemic and non-systemic firms.

3.25 As set out in chapter 1, a subsection of tokens already falls within the existing e-money regime (e.g. where, among other criteria within the EMRs, they provide users with a claim on the issuer and funds are redeemable at any time at par value). The government's view is that where such tokens are subject to existing regulation, these requirements should continue to apply.

3.26 In practice, this means that some tokens, where they meet the criteria for e-money, will be subject to e-money regulation and must be authorised by the FCA as such. To avoid scope for arbitrage and avoid confusion for consumers, the government is also considering whether stable tokens that are linked to a single fiat currency should meet the requirements applicable to e-money. Any stable tokens treated as e-money, which have significant potential to become systemic (see criteria below), would likely require enhanced regulation to meet the FPC's stablecoin expectations. The government is considering how to ensure that this can be applied in a manner that provides an appropriate and clear framework to support innovation.

3.27 In line with other regulation, the proposed authorisation regime would also allow for exclusions where, although an activity may fall within scope, the firm conducting that activity would not need to be authorised. This may

occur where the activity does not give rise to the same risks. For instance, services based on stable tokens used within a limited network of service providers (closed loop) or for acquiring a very limited range of goods or services (e.g. store payment cards) could be excluded. A lighter regime is being considered for smaller firms below a certain turnover, also akin to current payments regulation.

Stable token payment systems

- 3.28 The Payment Systems Regulator (PSR) is an economic regulator that regulates payment systems designated to it by HM Treasury to achieve objectives in relation to protecting interests of users, promoting competition and innovation. A payment system is defined within the Financial Services (Banking Reform) Act 2013 (the FSBRA 2013), as a system that enables persons to make transfers of funds.
- 3.29 The government judges that stable token arrangements which play a similar function to existing payments systems may be appropriate candidates for regulation by the PSR and is considering whether legislative adjustments are required to clarify this. Designation of a system for regulation by the PSR gives the PSR powers to place requirements or take action on the participants in that system. Participants are defined as system operators, infrastructure providers or payment service providers in relation to that system.

Systemic stable token payment systems

- 3.30 Where stable token arrangements reach systemic scale, the government judges that existing systemic payments regulation which applies to the system and service providers in relation to the system should also apply. In the UK this is enforced by the Bank of England under powers contained within part 5 of the Banking Act 2009 (the BA 2009), following a recognition decision made by HM Treasury.⁸
- 3.31 The government judges that a systemic stable token arrangement could be assessed for Bank of England regulation in the same way that current payment systems and service providers are (i.e. when potential disruption could lead to financial stability risks). Criteria under the BA 2009 for systemic payment systems includes consideration of their ability to disrupt the UK financial system and businesses based on current or likely volume and value of transactions, nature of transactions and links to other systems, as well as substitutability and use by the Bank of England in its role as monetary authority.
- 3.32 The government's proposal is that these criteria should also extend to stable tokens arrangements that perform a retail or wholesale payment system function. This would mean that a stable token with significant potential to be systemic at launch would need to be captured from launch by such

⁸ Link to HMT public document on recognition process - https://webarchive.nationalarchives.gov.uk/20130102201246/http://www.hm-treasury.gov.uk/d/bankingact_guidancenote_040809.pdf

regulation. Appropriate triggers for treatment in this manner would include likely user base, likely transaction volumes and likely avenues for acquisition of customers (e.g. through widely used platform).

- 3.33 Issuers or system operators that reach systemic status, as well as critical service providers as defined under the BA 2009, would be subject to regulation by the Bank of England and enhanced requirements grounded in the PFMI against which they would be required to produce an annual compliance self-assessment. In line with powers to issue codes of practice and rules within current payments system and service provider legislation, the Bank of England would be given powers to specify enhanced requirements.
- 3.34 The Bank of England will be required to consult on the proposed supervisory approach and enhanced requirements to be applied to systemic stable token systems and service providers. This will build on the PFMI and be grounded in the FPC's expectations set out in Box 3A. To meet the FPC's expectations, a systemic stable token arrangement would need to provide holders with a robust legal claim, ensure stability of value and enable users to redeem tokens at par into fiat. For asset-linked tokens, this would imply significant capital and prudential requirements and other protections.
- 3.35 Stable tokens bring together payment system activity, the issuance of a new, money-like asset and the storage of reserve assets. Current regulation for systemic payment systems applies to the recognised payment system operator as well as designated critical service providers in relation to a recognised system – for example information technology services or infrastructure providers.
- 3.36 The government's view is that it is possible other service providers or core entities that form part of a stable token chain could pose systemic risks (e.g. wallets). It is therefore considering, for stable token arrangements, whether Bank of England systemic regulation grounded in the PFMI and FPC expectations should also apply to service providers or entities within a chain where these pose systemic risks. For example, the government judges that certain wallets used to safeguard or exchange customer funds could pose systemic risks if used at scale because of the potential wider impact of any disruption (e.g. of consumers' ability to withdraw funds) and their potential role in fulfilling critical functions in the chain.
- 3.37 In applying this assessment approach, the bar for systemic importance and Bank regulation would remain high, as it is for payment systems and service providers to those systems at present. Within a competitive and diverse landscape, it is not clear that many service providers will attain systemic importance to require such enhanced regulation. However, the dynamic and nascent nature of the market requires ensuring the adequate powers are in place, subject to the recognition process, should they be needed now or in the future.

Location requirements

- 3.38 For firms carrying on payment services, the requirement to be authorised or regulated by the FCA applies in relation to activities that are carried on by way of regular occupation of business activity in the UK. Whereas, powers in relation to recognised payment systems under BA2009 apply on an extra-territorial basis. **Due to the digital, decentralised and cross-border nature of stable tokens, the government and UK authorities are considering whether firms actively marketing to UK consumers should be required to have a UK establishment and be authorised in the UK.** Options include: requiring UK presence and UK authorisation for stable token issuers, system operators and service providers when marketed in the UK; defining the activity conducted in the UK and determining whether UK authorisation is required as a result; or no location requirements.
- 3.39 The government and UK authorities are also considering the case for location requirements for systemic stable token arrangements under BA2009.

Box 3.C: Questions for respondents

- 9 Do you agree that the activities and functions outlined above are sufficient to capture the activities that should fall within the scope of regulation?
- 10 Do you agree that the government should primarily use existing payments regulations as the basis of the requirements for a new stable token regime, applying enhanced requirements where appropriate on the basis of mitigating relevant risks? What other existing legislation and specific requirements should also be considered?
- 11 Do you agree with the high-level requirements outlined? Do you consider that any additional requirements are needed?
- 12 Do you have views on whether single-fiat tokens should be required to meet the requirements of e-money under the EMRs, with possible adaptation and additional requirements where needed?
- 13 Do you have views on whether exclusions to the authorisation regime are needed in relation to the stable tokens regime, in light of the government's objectives? If so, which activities do you think should be excluded?
- 14 What are your views on the appropriate classification and treatment of (unbacked) tokens that seek to maintain a stable value through the use of algorithms?
- 15 Do you agree Part 5 of the Banking Act should apply to systems that facilitate the transfer of new types of stable tokens?

16 Do you have views on potentially extending Bank of England regulation of wider service providers in the stable token chain, where systemic?

17 Do you agree that Part 5 of FSBRA 2013 should apply to payment systems facilitating the transfer of new types of stable tokens?

18 Do you have views on location and legal entity requirements?

Authorisations regime for token issuers and service providers

- 3.40 As set out, the government's proposal is the FCA would authorise and supervise firms – both stable token issuers and relevant service providers – where they carry on certain regulated activities, an indicative list of which is set out below. The table also indicates where firms undertaking certain activities may be subject to BoE and/or PSR regulation.

Table 3.B: Anticipated activities, entities and requirements

			Anticipated regulator roles		
Activity (in relation to in-scope tokens)	Entities likely to be conducting activity	Requirements likely to apply	FCA regulated?	PSR regulated?	Bank regulated?
Issuing, creating or destroying tokens	Token issuers	<p>Authorisation</p> <p>Prudential requirements</p> <p>Requirements for the maintenance and management of a reserve of assets</p> <p>Orderly failure and insolvency</p> <p>Systems, controls, risk management and governance</p> <p>Reporting (including notifications requirements, e.g. if value of reserve falls below par) and record keeping</p> <p>Conduct requirements</p> <p>Outsourcing requirements</p> <p>Operational resilience, service reliability</p> <p>Security requirements</p> <p>Financial crime requirements</p> <p>If systemic, PFMI would apply with some modifications and significant requirements to address specific characteristics and risks</p>	Yes	If activity meets PSR designation criteria	If activity meets Bank recognition criteria

Issuing, creating or destroying single fiat tokens	Token issuers	<p>Authorisation</p> <p>PSRs and EMRs would likely apply – with modifications of requirements and additional requirements to address specific characteristics and possible different risks</p> <p>If systemic, PFMI would apply with some modifications and possible additional requirements to address specific characteristics and risks</p>	Yes	If activity meets PSR designation criteria	If activity meets Bank recognition criteria
Value stabilisation and reserve management	Token issuers or payment system operators	<p>No authorisation regime</p> <p>If systemic, PFMI would apply with some modifications and possible additional requirements to address specific characteristics and possible different risks</p>	Yes (as a requirement for the issuer)	If activity meets PSR designation criteria	If activity meets Bank recognition criteria
Validation of transactions	Depends on design, but may include token issuers	<p>No authorisation regime</p> <p>If systemic, PFMI would apply with some modifications and possible additional requirements to address specific characteristics and possible different risks</p>	No	If activity meets PSR designation criteria	If undertaken by asset issuers, system operators, or specified service providers, and if activity meets Bank recognition criteria
Access	Providers focused on	No authorisation regime	No	PSR has powers with	If activity meets Bank

	facilitating access to network or technology	<p>If systemic, PFMI would apply with some modifications and possible additional requirements to address specific characteristics and possible different risks</p> <p>Fair and open access to potential participants: criteria are proportionate, objective, non-discriminatory</p>		regard to system access	recognition criteria
Transmission of funds	Designated dealers, payment system operators, wallets	<p>No authorisation regime</p> <p>If systemic, PFMI would apply with some modifications and possible additional requirements to address specific characteristics and possible different risks</p>	No	If activity meets PSR designation criteria	If activity meets Bank recognition criteria
Providing custody and admin of token for a third party	Wallets, some exchanges where applicable	<p>Authorisation</p> <p>Prudential requirements</p> <p>Orderly failure and insolvency</p> <p>Safeguarding the stablecoin and key</p> <p>Safeguarding of customer funds / custody of client assets</p> <p>Systems, controls, risk management and governance</p> <p>Reporting and record keeping</p> <p>Conduct requirements</p> <p>Financial crime requirements</p> <p>Outsourcing requirements</p> <p>Security requirements</p>	Yes	If activity meets PSR designation criteria	Potential

		If systemic, PFMI's would apply with some modifications and possible additional requirements to address specific characteristics and possible different risks			
Executing transactions in a token – making payments	Token issuers, wallets and exchanges	As above	Yes	If activity meets PSR designation criteria	Potential
Exchanging tokens for fiat and vice versa	Token issuers, wallets and exchanges	As above	Yes	If activity meets PSR designation criteria	Potential

HM Treasury expects financial crime including anti money laundering requirements will apply to all wallets and issuers and that these will also have to register under AML registration for their activities in relation to all types of cryptoassets. The AML registration may not cover issuers; we would expect issuers to be subject to AML requirements in line with other regulated entities.

Chapter 4

Call for evidence on investment and wholesale uses

Security Tokens

- 4.1 The use of tokens to facilitate securities transactions is an important development for the financial sector. The representation of traditional securities, such as equities or debt, on a distributed ledger (the 'tokenisation' of assets) could have substantial implications for the way assets are traded or capital is raised. Security tokens that exist and are traded exclusively on the distributed ledger (and are therefore 'digitally native') are also playing an increasing role across markets. Existing examples of security tokens include Santander's 'blockchain bond' issued on the Ethereum blockchain.¹
- 4.2 Security tokens can sometimes be distributed through initial coin offerings (ICOs) which enable businesses to raise capital for their projects, by issuing digital tokens in exchange for fiat currencies or other cryptoassets, e.g. Bitcoin or Ether. ICOs are viewed as high risk,² but where used safely, could be used as an alternative funding tool for new and innovative business models, products and services, while the use of DLT could make the capital raising process more streamlined, faster and cheaper and facilitate global interconnectedness of markets.
- 4.3 As part of the FCA's Regulatory Sandbox programme, firms have compliantly issued equities, bonds and structured products on the Ethereum blockchain. These small-scale tests showed the potential of DLT-based systems to deliver securities issuances more efficiently; faster and cheaper when compared to traditional issuances, while increasing the transparency of ownership.
- 4.4 However, the government recognises that existing regimes were not originally intended to support the use of cryptoassets or DLT-based innovations. It would therefore like to understand what changes may be necessary to remove obstacles and enable the use of these new technologies.
- 4.5 For instance, there is no legal definition of a security token or tokenised security in the UK. The FCA has described them as providing rights and obligations akin to specified investments, like a share or a debt instrument or units in a collective investment scheme – this would mean that in the UK

¹ <https://www.santander.com/en/press-room/press-releases/santander-launches-the-first-end-to-end-blockchain-bond>

² <https://www.fca.org.uk/news/statements/initial-coin-offerings>

such tokens meet the relevant definitions in the RAO. If a token is negotiable on the capital markets (for example because it can be transferred from one person to another who then acquires legal title of the token), then it might be considered a transferable security under this framework.

- 4.6 The government would like to understand whether further legal clarification is required in the future, or whether the application of existing rules under this regime leads to specific obstacles, costs or barriers for participants.

Box 4.A: Questions for respondents

19 Are there any areas of existing regulation where clarification or amendments are needed to support the use of security tokens?

DLT-based financial market infrastructures

- 4.7 Distributed ledger technology (DLT) could potentially transform financial markets and the infrastructures that underpin them. The representation of assets on distributed ledgers could in theory deliver benefits such as more efficiency, improved liquidity, enhanced transparency and greater security. It may fundamentally alter the structure of the current market ecosystem, which is currently characterised by several different financial market infrastructures (FMIs) and intermediaries performing separate functions, from trade management processes, through to clearing and settlement, and on to post settlement activities such as custody and asset servicing.³
- 4.8 However, the adoption of DLT across financial markets may face a number of challenges and hurdles. The ability to overcome these challenges, and the way in which they are overcome, could be important in determining whether the benefits of DLT will be realised. This section of the consultation therefore aims to gather views about the potential of DLT to transform financial markets, what steps would need to be taken to fully realise this potential, and what barriers stand in the way of adoption.
- 4.9 In the first instance, the government wants to understand more about what the benefits of DLT may be to financial markets. In particular, the government would like to understand what the specific advantages are to adopting DLT in different parts of market value chains including whether DLT could lead to more efficient trading, clearing or settlement, and if so what the nature of the efficiencies realised would be (for example reduced settlement times or lower costs). The government would also appreciate views on where the benefits of DLT may go beyond efficiency and cost-

³ In this paper the term 'FMI' includes multilateral systems across all parts of the market value chain, including at the trading level as well as clearing and settlement.

effectiveness, particularly to security and transparency, and where it may spur innovation by changing the way markets operate.

- 4.10 Conversely, the government also invites industry views on the possible drawbacks of DLT if adopted across financial markets. For example, the creation of new intermediaries could create greater fragmentation within the existing FMI ecosystem, particularly if new DLT FMIs are not interoperable with each other or existing FMIs. This could potentially result in more complexity, less efficiency, and a reduction in the ability of supervisors to ensure regulatory compliance. It is possible that DLT FMIs make markets less, rather than more, transparent to market participants, depending on how they are specified.
- 4.11 Views would also be welcome regarding areas where the benefits of DLT for FMIs may be overstated- for example, it may be that incremental reform of existing market practices, or the further development of existing technology, will improve the performance of existing FMIs, rather than the adoption of DLT. Consideration should also be given to whether the optimal route is for increased take-up of DLT by existing FMIs, rather than DLT solely being utilised by new entrants.
- 4.12 The government is also seeking feedback regarding what regulatory or legal barriers exist that currently limit the adoption of DLT in UK financial markets. In particular, the government would like views as to whether existing UK legislation is adequate for capturing DLT-based FMIs, and whether the current legislation or regulation makes creating and operating a DLT excessively burdensome. It would be useful to hear feedback regarding how DLT will interact with existing rules around transfer of title, settlement finality, financial collateral, shareholder rights and corporate actions, and whether there is a need to optimise legislation across these areas to better accommodate DLT FMIs while safeguarding stability and security.
- 4.13 More broadly, industry views around the wider incentives and challenges in adopting DLT across financial markets and the potential solutions to these, would be valuable. Feedback could cover technical challenges, but also issues around industry incentives to implement DLT in a way that benefits UK markets collectively.
- 4.14 It is possible that a degree of coordination/collective action by market participants is required to achieve the benefits of DLT FMIs, while ensuring that innovation is not stifled. An example of where this may be needed is to ensure DLT FMIs are interoperable either with each other or with existing FMIs, so as to avoid or mitigate the new layers of intermediation and fragmentation that may otherwise be created, as noted above. The outcome in this instance could be the development of a basic set of standards that ensure the interoperability of DLT FMIs. Feedback to this consultation could consider other areas where it may be useful for the market to develop standards (such as cybersecurity, transparency, confidentiality and governance arrangements), as well as other approaches for overcoming barriers to adoption across markets.
- 4.15 The government is also seeking views over where government or regulator intervention may be useful. For instance, the government would welcome

industry feedback regarding initiatives that could be taken forward for trialling or testing DLT FMIs. This could entail making use of existing schemes, such as the FCA Sandbox, or developing new propositions, such as an initiative for testing the operation of a DLT FMI in the market. The government would have to carefully consider the impact of any proposals given the systemic importance of FMIs to the financial system and would need to work closely with the Bank of England given their role in regulating and supervising FMIs.

- 4.16 As noted above, market coordination may be required to deliver the benefits of DLT in the FMI space. The government would therefore appreciate views on whether regulators or government have a role to play in convening market participants. Alternatively, respondents may feel that any initiatives should be best left to the market. Given FMIs are important for international markets, specific UK rules could create conflicts with rules in other jurisdictions, meaning it may be preferable to take forward rules at global level first before adoption in the UK.

Box 4.B: Box title

- 20 What, specifically, are the potential benefits of the adoption of DLT by FMIs? What could be the benefits for trading, clearing and settlement?
- 21 What are the potential drawbacks of DLT for wholesale markets and FMIs?
- 22 Is UK regulation or legislation fit for purpose in terms of the adoption of DLT in wholesale markets and FMIs in the UK? How can FMI regulation/legislation be optimised for DLT?
- 23 What are the wider industry incentives or obstacles to the adoption of DLT in wholesale markets and FMIs in the UK?
- 24 If market coordination is required to deliver the benefits of DLT, what form could it take?
- 25 Would common standards, for example on interoperability, transparency/confidentiality, security or governance, help drive the uptake of DLT/new technology in financial markets? Where would common standards be most beneficial?
- 26 What should the UK government and regulators be doing to help facilitate the adoption of DLT/new technology across financial markets/FMIs?

Other unregulated tokens and new developments in the market

- 4.17 As discussed in chapter 1, the government notes that the primary use-case for many unregulated tokens, typically referred to as exchange tokens (including Bitcoin and Ether) is for speculative investment purposes.⁴ Unregulated tokens are often traded on exchanges which operate like trading platforms allowing users to exchange one token for another or convert back into fiat.
- 4.18 The retail investment use of these tokens raises potential financial consumer, investment protection and market conduct issues, as the Cryptoassets Taskforce acknowledged in its 2018 final report. However, public understanding of the risks involved in investing in this space is improving (see [FCA 2020 Research Note on cryptoassets](#)). For instance, 89% of consumers correctly understood that they did not have regulatory protections. Furthermore, the market remains comparatively small in relation to the broader financial services market – the FCA has estimated the current base of cryptoasset users in the UK to include less than 4% of the population.
- 4.19 The government recently consulted on a measure designed to address risks around consumer understanding of cryptoassets, proposing to bring certain cryptoassets into the scope of financial promotions regulations. This would hold cryptoasset promotions to the same standards as other financial promotions, ensuring that they are fair, clear and not misleading. If taken forward, this measure is intended to address key risks with respect to consumer awareness, reflecting findings that adverts are important components of the consumer journey with the ability to influence consumer sentiment.
- 4.20 Decentralised Finance (DeFi) is a relatively new and fast-growing sector within the cryptocurrency landscape. DeFi platforms take the form of decentralised apps which are not controlled by a central authority, commonly known as/referred to as 'dapps'. These dapps use a series of smart contracts to automate transactions, facilitating peer-to-peer lending, borrowing or trading with financial instruments on a permissionless network including, for example, platforms that enable users to earn interest on their tokens by connecting token holders to other borrowers.
- 4.21 At present, certain DeFi activities and tokens used to facilitate them, could like other cryptoasset-related activities more broadly, fall within the regulatory perimeter (see FCA cryptoasset guidance). The government does not currently propose to bring specific DeFi activities into the scope of regulation, but recognises the increasingly important role played by DeFi. It will therefore keep this space under review and monitor developments closely. The government is keen to hear views on the possible benefits and risks posed by DeFi and whether these developments should be brought into the regulatory perimeter in the future. The government is also keen to understand views in relation to the practicalities of any future regulation given their decentralised nature, and lack of financial intermediaries.

⁴According to FCA research 47% UK consumers reported that they bought cryptoassets as a gamble that could make or lose money. The second most popular reason given was that cryptoassets formed part of a wider investment portfolio (25%).

Box 4.C: Questions for respondents

- 27 Do you see value in the government capturing tokens typically used by retail consumers as a form of speculative investment under the regulatory perimeter in the future?
- 28 Do you have any views on how the government should bring these tokens into the regulatory perimeter in the future?
- 29 What are the risks and opportunities you see in relation to DeFi?
- 30 Do you have any evidence of risks to consumers when using tokens as a form of speculative investment or through DeFi that may be of interest to the government and UK authorities?

Chapter 5

Responding to this consultation and call for evidence

Responding to this consultation and call for evidence

- 5.1 This consultation will close on 21 March 2021. We are inviting stakeholders to provide responses to the questions set out above, share views on our proposed future approach, or to provide views on any issue relevant to the UK's approach to cryptoassets and DLT.

Who should respond?

Responses are welcome from all stakeholders, including:

Cryptoassets firms, technology firms and financial institutions

Other businesses impacted by cryptoasset regulation

Trade associations and representative bodies

Academics and legal firms

Consumer groups

How to submit responses

Please submit your responses to cryptoasset.consultation@hmtreasury.gov.uk, or post to:

Cryptoassets and stablecoin consultation

Payments and Fintech

HM Treasury

1 Horse Guards Road

SW1A 2HQ

More information on how HM Treasury will use your personal data for the purposes of this consultation is available on the webpage.

Next steps

- 5.2 This first consultation sets out a proposed policy approach to bringing stable tokens into the UK regulatory perimeter, focusing on responsibilities of financial services regulators. The government will carefully consider the responses received and use these to inform a response, setting out more detail on how the proposed approach may be implemented in law. Further

technical consultations will be issue by UK authorities on specific firm rules. An illustrative timeline of recent and ongoing workstreams is set out in the annex.

- 5.3 As part of this consultation, the government will also undertake a programme of stakeholder engagement. This will maximise opportunities for stakeholders to share their views with the government.

HM Treasury contacts

This document can be downloaded from www.gov.uk

If you require this information in an alternative format or have general enquiries about HM Treasury and its work, contact:

Correspondence Team
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1 Horse Guards Road
London
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Glossary of terms¹

Cryptoassets	<p>A broad term used to describe digital tokens often issued on a DLT system. These can vary fundamentally in their economic features and characteristics, from permission-less cryptoassets like bitcoin, to asset backed stablecoins.</p> <p>Several definitions exist, which focus on characteristics including use of cryptography or DLT, the ability to transfer the token, or store or trade it electronically. Chapter one of the consultation sets out the different types of cryptoassets, and their key characteristics.</p>
Cryptoasset Wallets	<p>A cryptoasset wallet typically allows the storage and management of cryptoassets and cryptographic keys (mainly private keys which correspond to public keys), in order to enable the user to store and transfer cryptoassets. However, wallet designs and the precise role of the wallet service provider do vary.</p> <p>There are three types of cryptoasset wallets, according to their custody model: The secure storage of cryptographic keys, required to unlock and transfer funds. There are three types of custody:</p> <ul style="list-style-type: none"> • custodial: where a service provider is in full control of keys and funds, generally in the interest of customer convenience when transacting (sometimes known as a 'hot' wallet). • non-custodial: where a customer is in full control of keys and unilaterally moves cryptoassets (sometimes known as a 'cold' wallet). • hybrid: where approval of both the service provider and the customer is required to unlock or move funds.
Cryptoasset exchanges	<p>Venues facilitating the purchase or selling of cryptoassets, either in exchange for fiat currencies or other cryptoassets. .</p> <ul style="list-style-type: none"> • centralised: Exchange operator controls matching, clearing, and settlement. • peer-to-Peer: For clearing and settlement, the exchange operator connects buyers with sellers. • decentralised: No central operator required, instead all processes are directly executed on and by the DLT system.
Distributed Ledger Technology	<p>Distributed Ledger Technology (DLT) is a type of technology that enables the sharing and updating of records in a distributed and decentralised way.</p>

¹ the above glossary provides definitions for the purpose of this consultation only

	<p>There are many different types of DLT platforms, and they usually combine elements of four common features:</p> <ul style="list-style-type: none"> • data distribution: Many participants can keep a copy of the same ledger, and are may be able to read and access the data • decentralisation of control: Many participants can update the ledger, subject to agreed processes and controls • use of cryptography: Cryptography may be used to identify and authenticate approved participants, confirm data records, and facilitate consensus with regard to ledger alterations. The use of this technology is not unique to DLT • programmability: Computer-coded automation (such as smart contracts) can automatically execute transactions when certain, pre-agreed conditions are met, such as triggering periodical interest payments • programmability/automation: Computer-coded automation (such as smart contracts) can automatically implement the terms of an agreement, such as automatically triggering interest payments on a bond. <p>There is no standard definition or form of DLT. The specific combination of these features depends on what a particular DLT platform is being used for and the design choices made by developers.</p>
Blockchain	<p>A particular type of distributed ledger, which refers to a specific way of structuring data on a DLT platform by cryptographically linking groups of records (“blocks”) in an ever-growing “chain”.</p> <p>See also definition for Distributed Ledger Technology (DLT).</p>
Stablecoin	<p>Referred to in this consultation as “stable tokens”. These are an evolution of cryptoassets, which are designed to minimise volatility in value. Stablecoins aim to maintain stability in their price, typically in relation to a stable asset such as fiat currency. There are two types of stablecoin:</p> <p>asset backed: backed by collateral in the form of an asset, or a basket of assets, such as gold or a fiat currency</p> <p>algorithmic: a coin programmed to regulate issuance and redemption to match supply and demand.</p> <p>See the consultation document for elaboration on different types of stablecoin.</p>

Timeline of recent and ongoing workstreams

