EXHIBIT A

Gkatzimas Report

IN THE UNITED STATES BANKRUPTCY COURT
FOR THE DISTRICT OF DELAWARE

In re:	)	
	)	
FTX TRADING LTD., et al.,	)	
	)	
Debtors	)	Case No. 22-11068
	)	
	)	
	)	

DECLARATION OF

IOANNIS GKATZIMAS

ON BEHALF OF

TAI MO SHAN LIMITED

AUGUST 19, 2024

CONTENTS

I. QUALIFICATIONS

1. My name is Ioannis Gkatzimas. I am a Principal at the San Francisco office of The Brattle Group ("Brattle") and the co-leader of Brattle's Cryptocurrency & Digital Assets practice. Brattle is a global consulting firm that answers complex economic, finance, and regulatory questions for corporations, law firms, and governments around the world. My professional experience often involves analysis of trading activity and valuation questions related to digital assets and their derivatives. I have consulted in numerous matters involving valuation of contingent claims or option-like securities in traditional financial markets, commodities, and digital markets and in the context of both exchange-traded and bilateral and bespoke contracts. I have applied option valuation methodologies in a variety of contexts, including on individual securities or portfolios of options and other derivatives, stakes in venture-funded firms in various development stages or firms going through a proposed change of control or liquidation event, and complex structures with option-like components in illiquid markets among others.

2. As part of my consulting experience, I led and performed economic analyses in a wide range of disputes related to options and option-like derivatives, including exchange-traded options, over-the-counter options and portfolio structures combining one or more option components with other securities or derivatives to establish custom desired payoff profiles. I have consulted on the payoff profile of complicated option structures, option-based and volatility-based investment strategies, and the use of warrants (option-like derivatives) in venture capital investments and associated financing agreements. In addition, I have consulted on the economic characteristics and valuation of incentive stock options, and their use by companies to provide incentives that align employee and corporate goals. In particular, I have consulted on numerous matters involving the application, and the economic characteristics of the Black-Scholes-Merton model ("Black-Scholes" model), a widely used and accepted option valuation model by both market participants and the academic community. I have also provided opinions and testimony on the use of the Black-Scholes model to value options and option-like contracts, the economic characteristics and typical use cases of various option contracts, the sensitivity of Black-Scholes results to economic and market inputs, and the estimation of such inputs.

3. I have consulted in several other matters related to the cryptocurrency industry and derivatives. Examples include consulting on a dispute over a liquidation strategy and potential market impact

of a concentrated position in a digital asset, providing analyses of market structure and use cases of stablecoins, providing arbitrage analyses of observed flows by market participants and volumes across cryptocurrency exchanges, examining product design and features of derivatives offered in unregulated cryptocurrency exchanges, and providing analyses of volume and economic activity underlying spot cryptocurrency markets used to inform settlement prices on regulated cryptocurrency derivative products (including representations to regulators and investors).

4. I have also been a member of the professional faculty at UC Berkeley's Haas School of Business since 2013, during which I designed and taught a course in Financial Engineering and, more recently, a course in Investments for undergraduates. As part of these courses, I have been teaching the various methodologies used to value derivatives (including futures, options, and swaps). In particular, I have taught option pricing and valuation methodologies, which include the Black-Scholes model, the different types of option contracts such as calls and puts, the economic significance of option premia, and the use of Greeks (sensitivities of the Black-Scholes model to its various inputs) in trading and hedging options and option-like contracts. My teaching also addresses the structure of derivative markets (which includes options), the economics of derivatives and volatility trading, and the risk management and hedging tools for derivative positions.

5. I earned a M.Sc. in Financial Mathematics from Stanford University, a Master of Financial Engineering from the UC Berkeley's Haas School of Business, and an MBA in International Finance from St. John's University. Prior to my studies, I served as an officer-in-reserve for the Hellenic Armed Forces and earned my undergraduate degree in Pharmaceutical Sciences at the Aristotle University of Thessaloniki in Greece. I also hold the Chartered Financial Analyst® designation ("CFA") and I have been a member of the CFA Society of San Francisco since 2010. A copy of my curriculum vitae is provided in Appendix A.

6. Brattle is compensated at my hourly billing rate of $800 for my work on this matter. In this report, I have been supported by Brattle's consulting staff who worked under my guidance. Our compensation is not contingent on the outcome of this matter. I have formed my opinions based

on the material I reviewed, and I reserve the right to update my opinion if I receive additional material and information about this matter.

II. ASSIGNMENT AND SUMMARY OF OPINIONS

7. I have been asked by Katten Muchin Rosenman LLP, Counsel to Tai Mo Shan Limited ("TMSL"), to estimate the value of the transaction set forth in "Exhibit B, Initial Loan Confirmation 2" attached to the Master Loan Agreement between TMSL and Alameda Research Ltd ("Alameda"), dated 12 August 2020, (the "MLA" and, together, the "Agreement")[1] as of November 11, 2022 (the "Petition Date"). I provide further details on the Agreement in the next section. For the purpose of my valuation analysis, I have been instructed that the price of the SRM token as of the Petition Date is $0.4063157.[2]

8. In my opinion, a key component of the Agreement is equivalent to the economic characteristics of a call option. It allows TMSL the right (but not the obligation) to obtain ownership of up to 800 million SRM tokens by the Agreement's end date at $0.12 per token. Using the Black-Scholes model, a widely accepted and broadly applied framework to value call options, I estimate that the value of the Agreement to TMSL, assuming that the price of the SRM token as of the Petition Date is $0.4063, ranges from $279 million to $311 million. This range results from different volatility inputs I apply in the Black-Scholes model. These different volatility inputs are estimated using SRM price movements and associated returns over different estimation windows (including 3 months, 6 months, 9 months and 1 year).

9. Based on my review of a prior order of the Court and materials referenced in that order, the volatility estimation window used in the methodology accepted by the Court for estimating the value of certain SRM tokens was 9 months preceding the Petition Date. Using this window, I estimate that the value of the Agreement is $291.8 million. I also explain later in this declaration that the result from my analysis serves as a conservative estimate of the value of the Agreement as of the Petition Date.

---

[1] I note that I use the term "Agreement" throughout my declaration to refer to "Exhibit B, Initial Loan Confirmation 2," and where I intend to reference only the Master Loan Agreement, I use the term "MLA."

[2] I use this price (with all its decimal values) in my analysis. For brevity henceforth in this report, I refer to this price using four decimal places i.e., $0.4063.

III. THE VALUE OF THE AGREEMENT

A. OVERVIEW OF THE AGREEMENT

10. On August 12, 2020, TMSL and Alameda executed the Agreement. Under the Agreement:

    a. Alameda would deliver a total of 800 million SRM tokens to TMSL (the "loan component"). The 800 million SRM would be delivered at a constant rate per day of 547,945 tokens from August 1st, 2023 through August 1st, 2027.[3]

    b. The term of the Agreement would be seven years (i.e., until August 12, 2027).

    c. There would be no interest on the loan component (i.e., the SRM tokens delivered from Alameda to TMSL).

    d. TMSL would be entitled to repay all or any portion of the balance of the loan component in either the SRM tokens or by exercising a U.S. Dollar repayment right at $0.12 per token. Further, TMSL would also have prepayment rights at no additional fees.[4]

11. Crypto loan agreements similar to the Agreement described above appear to have been used in the crypto industry between crypto market participants and crypto projects. The general mechanics of crypto loan agreements can be found on common crypto industry sources, with the key economic aspects sharing similarities to the Agreement.[5]

B. THE AGREEMENT PROVIDES TMSL WITH AN OPTION TO PURCHASE SRM AT $0.12 PER TOKEN

12. Figure 1 below summarizes the economic considerations of the Agreement.

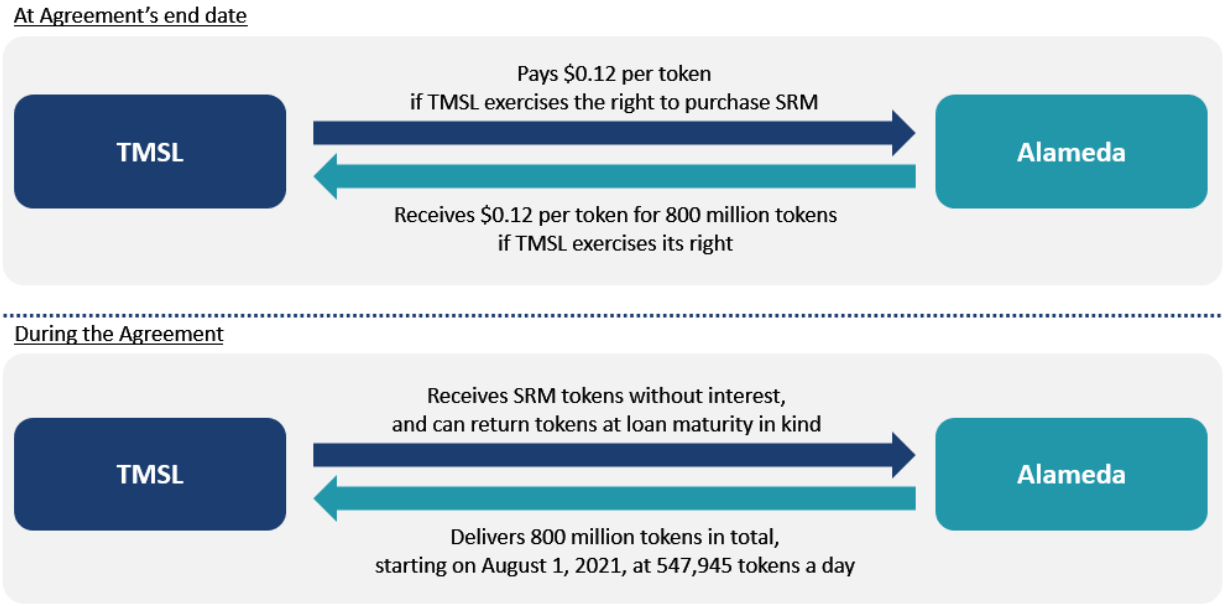
---

[3] There are 1,462 days in the period from August 1, 2023 to August 1, 2027 (inclusive). 547,945 tokens every day for this period results in approximately 800 million SRM by the last day of the delivery period.

[4] The Agreement, Section II.d.ii.A ("For each Loan, Borrower shall have a Prepayment Right that Borrower may exercise in whole or in part… There shall be no additional fees for exercise of a Prepayment Right.").

[5] *See, e.g.*, "Fundamentals: Types of Market Makers," Acheron Trading, accessed August 15, 2024, https://acherontrading.com/blog/fundamentals-types-of-market-makers.

FIGURE 1: ECONOMIC CONSIDERATIONS OF THE AGREEMENT



13. As illustrated in Figure 1, a key component of the Agreement from the perspective of TMSL is the right to obtain ownership of 800 million SRM tokens at $0.12 per token at the Agreement's end date (or a portion of the 800 million SRM tokens before the Agreement's end date). This right is economically equivalent to a financial instrument known as a "call option." A call option gives the option holder the right to buy an underlying asset by a predetermined date (typically referred to as the option expiration date or the option maturity date), at a predetermined price (typically referred to as the option exercise price).[6] In the context of the Agreement, the option expiration date is the date that the Agreement ends, and the option exercise price is $0.12 per token. The option holder (i.e., TMSL in this context) can benefit from upside movements in the asset price, without having to bear downside risk. If, for example, at maturity, the price of SRM increases above the option exercise price of $0.12, TMSL can exercise the option for the 800 million SRM tokens at $0.12 per token (which is lower than the token's market price).[7] However, if at maturity, the price of SRM is below the option exercise price of $0.12 per token, TMSL can simply let the option expire.[8]

---

[6] John C. Hull, *Options, Futures, and Other Derivatives,* (New Jersey: Pearson Education, 2015), 9th Edition, p. 8.

[7] In this case, TMSL will pay $0.12 per token, and obtain ownership of 800 million SRM tokens.

[8] In this case, TMSL will simply return 800 million SRM tokens back to Alameda.

14. A call option that allows the option holder to exercise the right to purchase the underlying asset at any time up to the maturity date is referred to as an American call option.[9] A European call option, in contrast, only allows the option holder to exercise on the expiration date itself.[10] The option component under the Agreement resembles an American call option because it allows TMSL to exercise prior to, as well as on, the option expiration date (i.e., when the Agreement ends). From an economic perspective, an American call option is worth at least as much as an equivalent European call option since it provides more flexibility to the option holder. However, for non-dividend paying assets, it is generally not optimal to exercise American call options early (i.e., before the expiration date). Therefore, for these assets, American call options are equivalent to European call options.[11] In this instance, I consider that SRM tokens are digital assets that do not pay dividends.

15. The payoff of a call option depends on the underlying asset price.[12] Consider a call option on an asset with an exercise price of $10 and one month to expiration. Suppose the current asset price is $12. In one month's time, the asset price might go up to $15, in which case the option holder can exercise the option and receive a payoff of $5 ($15 − $10). However, it is also possible that in one month's time, the asset price will decline to $6, in which case the option holder will just let the option lapse and thus the payoff will be $0.[13] The current value of the option is the present value of its *expected* payoff (i.e., average of all possible future payoffs).

16. The value of a call option is the sum of its "intrinsic value" and its "time value." The intrinsic value of a call option is the payoff to the option holder if the option were to be exercised *immediately*. In the above example, the intrinsic value of the option is $2, the difference between the current asset price of $12 and the exercise price of $10. A call option with a positive intrinsic

---

9 John C. Hull, Options, *Futures, and Other Derivatives*, (New Jersey: Pearson Education, 2015), 9th Edition, p. 9.

10 John C. Hull, Options, *Futures, and Other Derivatives*, (New Jersey: Pearson Education, 2015), 9th Edition, p. 9.

11 John C. Hull, Options, *Futures, and Other Derivatives*, (New Jersey: Pearson Education, 2015), 9th Edition, pp. 245 - 246.

12 A call option provides the option holder with leveraged economic exposure to the underlying asset. A call option holder will benefit from an appreciation of the underlying asset. In other words, buying a call option effectively equates to expressing a view that expects future appreciation of the underlying asset.

13 In this case, the right of the call option holder to buy the stock at $10 has no value, as he or she can simply buy the stock in the market for $6.

value, i.e., an exercise price lower than the current stock price – as with the option component of the Agreement in this case, is said to be in-the-money as the option holder would realize a positive payoff upon immediate exercise. A call option with an exercise price higher than the current stock price has zero intrinsic value and is said to be out-of-the-money. Such an option, however, still has a positive value. This is due to the time value component of the option, which reflects the possibility of future favourable movements in the stock price.

17. I note that Figure 1 above also shows that, in addition to the option component, the Agreement also provides TMSL with an interest-free loan of SRM tokens before the option expiration date. TMSL can potentially use these tokens to generate profits (in addition to any potential upside gain from the option component of the Agreement). For example, TMSL can earn profits by transacting in the SRM tokens it receives.[14]

C. VALUATION FRAMEWORK

18. Given the economic considerations of the Agreement discussed above, I estimate the value of the Agreement to TMSL using the Black-Scholes model, a widely accepted and broadly applied framework to value European call options.[15]

19. The Black-Scholes model is a commonly used benchmark to value options in traditional financial markets (such as stocks).[16] In the context of digital and crypto assets, there is evidence that crypto market participants consider the Black-Scholes model as a tested valuation tool that can provide a simple, yet insightful, framework to value options.[17] The academic literature in

---

[14] Since TMSL can keep the tokens without paying interest, from an economic perspective, it is unlikely that TMSL would have an incentive to return these tokens before the Agreement's end date.

[15] *See* John C. Hull, Options, *Futures, and Other Derivatives*, (New Jersey: Pearson Education, 2015), 9th Edition, Chapter 15.

[16] As it is a theoretical model, there are certain assumptions that the Black-Scholes model relies on. Some of these assumptions have been subject to criticisms and modifications/alternative models have been proposed by academics. However, the Black-Scholes model is still recognized as a foundational option pricing model that is simple to implement and able to yield relatively meaningful results.

[17] *See e.g.*, "Deribit Option Wizard," Deribit Insights, accessed August 15, 2024, https://insights.deribit.com/education/deribit-option-wizard/ ("The most well-known of these is the Black-Scholes model, which allows for the calculation of a theoretical option price. Even though these models are not perfect, they allow for better comparisons between options, and give traders a mathematical framework to make well-founded investment decisions."); *see also*, Noshaba Zulfiqar and Saqib Gulzar, "Implied volatility

recent years has explored (and is continuing to do so) how more complex valuation models perform relative to the Black-Scholes model in the context of crypto derivatives. Given the relatively nascent nature of crypto assets (compared to more traditional financial assets), the literature is still evolving. Some evidence suggests that the Black-Scholes model yields relatively conservative valuation outcomes compared to other models.[18] Given that practitioners and academics continue to use the Black-Scholes model as a comparison benchmark for valuing options in crypto assets, I rely on the model as a simple, yet informative, framework to value the option component of the Agreement in this case.

20. The formula underpinning the Black-Scholes model is: [19]

$$c = S_0 N(d_1) - K e^{-rT} N(d_2)$$

where

$$d_1 = \frac{\ln(\frac{S_0}{K}) + \left(r + \frac{\sigma^2}{2}\right) T}{\sigma\sqrt{T}}$$

$$d_2 = \frac{\ln(\frac{S_0}{K}) + \left(r - \frac{\sigma^2}{2}\right) T}{\sigma\sqrt{T}}$$

The variables within the Black-Scholes formula are:

c is the European call option price (i.e., the value of the call option).

S_0 is the underlying price as of the valuation date.

K is the option exercise price.

T is the option time to expiration.

---

estimation of bitcoin options and the stylized facts of option pricing", *Financial Innovation* (September 2021): p. 12, accessed August 15, 2024, https://doi.org/10.1186/s40854-021-00280-y ("Deribit has ranked in the top 3 crypto-futures exchanges and is the number 1 crypto-options exchange globally, offering European-style options with a right to exercise at the expiration date. It follows the standard Black-Scholes option pricing model to price its actively traded Bitcoin options (Coin-Telegraph 2019b; Hecker-Noon 2018).").

[18] Melanie Cao and Batur Celik, 2021, "Valuation of bitcoin options", *Journal of Futures Markets* 41(7), 1007-1026.

[19] John C. Hull, *Options, Futures, and Other Derivatives*, (New Jersey: Pearson Education, 2015), 9th Edition, pp. 335-336.

σ is the volatility of the underlying asset per year.

r is the risk-free rate.

The function $N(X)$ is the cumulative probability distribution function for a variable with a standard normal distribution.

21. I note that the option component under the Agreement resembles an American call option, which can be worth more than a European call option for certain assets, as I explain above. Further, the Agreement also allows TMSL to make use of the SRM tokens delivered before the Agreement's end date, which can provide additional economic value. Thus, the results under my valuation analysis, which are based on the Black-Scholes model for European call options, are likely to serve as the lower bound of the value of the Agreement. To the extent that the delivery of SRM tokens before the Agreement's end date is valuable to TMSL (for example, if TMSL profitably transacts in the SRM tokens it receives), this value is not included in my valuation analysis.

D. VALUING THE AGREEMENT

22. In the context of the Agreement, the inputs to the Black-Scholes model translate to:

    a. <u>The underlying asset price as of the valuation date S_0</u>:

        i. This represents the price of SRM tokens as of the Petition Date, which I've been instructed the Court has previously determined to be $0.4063.[20] I understand that this price was derived from trading activity in SRM tokens between willing market participants. Prior to the Petition Date, as I noted in a prior declaration I submitted, the SRM tokens were actively traded on a number of exchanges, with an average daily volume of more than 30 million SRM tokens per day in the year leading up to the Petition Date. There was also an active market for futures in SRM tokens (with higher average trading volume than the spot markets).[21] The SRM price of $0.4063 thus represents an aggregate market price given market participants' trading interests in the SRM tokens.

---

[20] *See* Section II.

[21] United States Bankruptcy Court for the District of Delaware, Declaration of Ioannis Gkatzimas, February 16, 2024, Figure 2, p. 8.

ii. I note that while the formula for the Black-Scholes model relies on the price of the underlying asset as of the valuation date, the result from the Black-Scholes model essentially represents the present value as of the valuation date of the call option, taking into account possible future price paths of the underlying asset. For example, the underlying asset (i.e., SRM tokens in this case) can increase above or decrease below the current price in the future, and each of those future scenarios will result in a different future payoff for the call option holder. The Black-Scholes model effectively estimates the call option value as the average of all these future payoffs, discounted back to the valuation date.

b. The option exercise price K: This is $0.12 per SRM token in the context of the option component of the Agreement.

c. The time to expiration of the option T: This is approximately 4.75 years in the context of the option component of the Agreement (i.e., the time from the Petition Date of November 11, 2022 to when the Agreement ends, on August 12, 2027).

d. The risk-free rate r: I use the yield on 5-year U.S. Treasury Securities as a proxy for the risk-free rate. This rate is 3.95%.[22]

e. The volatility of the underlying asset (i.e., the SRM tokens in this case) σ:

i. The Black-Scholes model relies on implied volatility, which is the expected level of volatility. One way to estimate the implied volatility of an asset is to analyze the historical price movements in the asset over a period of time prior to the estimation date (the "estimation window").[23] A long estimation window takes into consideration more data points; however, it might not accurately reflect the market conditions the asset was trading in at the time of the valuation date. A short estimation window, in contrast, might better reflect the market conditions that the asset was trading in at the time of a valuation

---

[22] November 11, 2022 was Veteran's Day, a U.S. federal holiday, and therefore the Federal Reserve Bank of St. Louis did not publish the 5-year yield for this date. I use the yield on November 10, 2022, the day immediately before the Bankruptcy Date, instead.

[23] In the case of traded options, the implied volatility can be inferred by market prices of traded options and the other inputs to Black-Scholes model which are readily observable (therefore the term "implied"). There was no trading of options on the SRM token to my knowledge as of the Petition Date that could be used to infer the implied volatility of the SRM token.

date; however, a window that is too short might not be representative of the true volatility of the underlying asset.

23. To demonstrate the impact of different estimation windows, I have provided results using 3-month, 6-month, 9-month, and 1-year estimation windows prior to the Petition Date. As noted above, in a previous order, the Court accepted calculations based on a volatility estimation window of 9 months. It appears that the volatility estimate accepted by the Court was computed "ignoring the minima and maxima of the value."[24] It is unclear from this language what the exact calculations here might have been. One interpretation is that the volatility was calculated by excluding the minimum and maximum returns during the estimation window. I present my results both with and without relying on this interpretation.[25]

24. Table 1 summarizes my estimates of the value of the Agreement using the Black-Scholes model under various annualized volatility levels, assuming that the price of SRM was $0.4063 as of the Petition Date.

25. Table 1 shows that under this assumption, the value of the Agreement ranges from $279 million (using the annualized volatility estimated based on a 3-month window prior to November 11, 2022, after removing the minimum and maximum return) to $311 million (using the annualized volatility estimated based on a 3-month window prior to November 11, 2022 without removing

---

[24] United States Bankruptcy Court for the District of Delaware, Memorandum Opinion and Order, Case 22-11068-JTD, Doc 19069, dated June 26, 2024. United States Bankruptcy Court for the District of Delaware, Expert Report of Fotios Konstantinidis, January 26, 2024, n. 66 ("We reviewed the different time intervals for the volatility of the three tokens and we chose 9 months as the optimal interval (ignoring minima and maxima of the value).").

[25] In addition, from my review of market data on SRM prices, I observe that the volatility of SRM increased substantially in the days leading up to the Petition Date (after the publication of a Coindesk article on November 2, 2022 about FTX). For comparison purposes, I also estimate the volatility for SRM after excluding the period from November 2, 2022 to November 11, 2022. That is, my alternative volatility calculations rely on pricing data over the 3-month, 6-month, 9-month, and 1-year period prior to November 2, 2022 (as opposed to prior to the Petition Date itself). My results here are quantitatively similar to using the same estimation window prior to the Petition Date with the minimum and maximum returns during the estimation window excluded from the volatility calculations. I provide these results in Appendix C. The Coindesk article published on November 2, 2022 is Ian Allison, "Divisions in Sam Bankman-Fried's Crypto Empire Blur on His Trading Titan Alameda's Balance Sheet," *CoinDesk*, November 2, 2022, accessed February 15, 2024 at https://www.coindesk.com/business/2022/11/02/divisions-in-sam-bankman-frieds-crypto-empire-blur-on-his-trading-titan-alamedas-balance-sheet/.

the minimum and maximum return).[26] I note that a higher volatility estimate, all else being equal, gives rise to a higher option value.

TABLE 1: VALUATION OF THE AGREEMENT
ASSUMING SRM PRICE OF $0.4063 PER TOKEN AS OF THE PETITION DATE

Volatility Estimation Window			3 Months	6 Months	9 Months	1 Year
Underlying Token Price	[1]	$0.4063157				
Total Number of Tokens	[2]	$800,000,000				
Annualized Volatility						
Without Removing Min/Max Return	[3]		154%	139%	132%	124%
With Removing Min/Max Return	[4]		90%	107%	110%	107%
Value of Option on One Token						
Based on Volatility in [3]	[5]		$0.3887	$0.3820	$0.3785	$0.3737
Based on Volatility in [4]	[6]		$0.3489	$0.3619	$0.3647	$0.3622
Total Option Value (for 800 Million Tokens)						
Based on Volatility in [3]	[7]		$310,979,534	$305,634,721	$302,829,939	$298,974,095
Based on Volatility in [4]	[8]		$279,114,926	$289,508,752	$291,770,822	$289,726,795

Sources and notes:
[1]: Instructions.
[2]: The Agreement.
[3]-[4]: Annualized volatility calculated from daily SRM returns during an estimation window prior to the Petition Date, using pricing data obtained via CoinMarketCap.
[5]: Option value from Black-Scholes formula, using volatility in [3].
[6]: Option value from Black-Scholes formula, using volatility in [4].
[7]: [2] x [5].
[8]: [2] x [6].

IV. CONCLUSION

26. In my opinion, the option component of the Agreement is valuable to TMSL, and as of the Petition Date, I estimate that the value of the Agreement ranges from $279 million to $311 million. This range reflects the different estimates of volatility, which varies depending on the length of the estimation window. Based on my review of the prior materials produced in this matter, the volatility that has been used in calculations accepted by the Court was estimated using a 9-month window. Using a conservative volatility estimate (whereby the minimum and

[26] I note that the analysis I present in this declaration uses data from CoinMarketCap. I have also performed the same analysis using CoinAPI data and the results are quantitatively similar.

maximum returns are excluded from the 9-month estimation window), the value of the Agreement under the Black-Scholes model is $291.8 million.[27]

APPENDIX A: CURRICULUM VITAE OF IOANNIS GKATZIMAS, CFA

PRINCIPAL | SAN FRANCISCO, CA

+1.415. 217.1057 | IOANNIS.GKATZIMAS@BRATTLE.COM

Mr. Gkatzimas specializes in complex financial markets disputes related to trading, valuing, and investing in securities and portfolios across asset classes, including digital assets.

Mr. Gkatzimas is the leader of Brattle's credit, derivatives and structured products practice, and the co-leader of Brattle's cryptocurrency and digital assets practice. He is an expert on derivative securities, structured finance, credit products, alternative investments, and digital assets, including their unique regulatory considerations, market structure, transactions, and valuation practices. Mr. Gkatzimas has significant experience with benchmark-related matters, and he actively consulted on financial industry considerations related to the fallback framework of interbank-offered rates (IBORs). Recent digital asset consulting engagements include analyses of market structure and regulatory issues in the emerging cryptocurrency ecosystem, including cryptocurrency exchanges, the trading of digital assets and their derivatives, and the evolution of initial coin offerings (ICOs).

Clients engage Mr. Gkatzimas in a wide range of finance-related issues. He consults on disputes involving venture capital investments and contingent claims, valuation of illiquid securities, options, warrants, swaps and bespoke derivatives, fixed-income securities, credit instruments, and on securities class actions and mergers and acquisitions. In his expert analysis work, he frequently addresses transaction and valuation disputes involving large, complex datasets.

Mr. Gkatzimas has led experts and consulting teams through all stages of regulatory investigations, litigations, arbitrations, and mediations. His casework spans numerous industries, including banking and financial institutions, mortgage finance, financial services and investment management, pharmaceuticals, technology, and energy. Notable engagements include a series of

---

[27] My valuation analysis based on the Black-Scholes model uses the price of SRM tokens as of the Petition Date, which is $0.4063157 per token as per the instruction provide to me. I understand that the Court, in a different context, applied a discount of 18.6% to this price (which equates to $0.3307410 cents per token, see Docket # 19143 p. 668 of 689). Because the Black-Scholes model is sensitive to price as an input, I provide the results under the Black-Scholes model using this discounted price in Appendix C.

reports for the International Swaps and Derivatives Association (ISDA) on IBOR fallback rates in derivative markets, the Department of Justice's investigation of S&P rating practices for collateralized debt obligations (CDOs), and the JDS Uniphase Corporation Securities Litigation.

In addition to his consulting work, Mr. Gkatzimas is a member of the professional faculty at the UC Berkeley Haas School of Business, where he developed and taught undergraduate courses on financial engineering and investments. Mr. Gkatzimas is a CFA charterholder (Chartered Financial Analyst) and a member of the CFA San Francisco society.

A. EXPERT WITNESS EXPERIENCE (REPORTS AND TESTIMONY)

- In re: FTX Trading, Ltd., et al., Debtors | Chapter 11, Case No. 22-11068 (JTD) | Declaration (filed February 16, 2024); Deposition (March 7, 2024); Expert Testimony at US Bankruptcy Court in the District of Delaware Hearing (March 25, 2024)
- Confidential filing, Delaware Corporation, Plaintiff, v. Group of Investors, Defendants | Declaration filed with the Delaware Court of Chancery (January 5, 2024)
- Hyde Park Venture Partners Fund III, L.P. and Hyde Park Venture Partners Fund III Affiliates, L.P., Petitioners, v. FairXchange, LLC, a Delaware limited liability company, as successor in liability to FairXchange, Inc., a Delaware Corporation, Respondent | Case No. C.A. No. 2022-0344-JTL | Reports (filed June 30, 2023, and August 2, 2023); Deposition (September 13 and September 14, 2023); Expert Testimony at Delaware Court of Chancery Trial (November 15, 2023)
- James Brewer, M.D, Ph.D., v. Impact Biomedicines | Case No. 37-2019-00067876-CU-CO-CTL | Deposition (October 21, 2022); Expert Testimony at Jury Trial (January 26 and January 30, 2023)
- Balaji K. Srinivasan, an individual, Plaintiff, v. Hashflow Foundation Inc., a Delaware Corporation, Defendant | Case No. CGC-22-597585 | Declaration (January 27, 2022)
- Confidential Arbitration, Former Employee v. Start-up Industrial Company | JAMS | Deposition (January 19, 2022); Expert Testimony (February 1, 2022)
- Mizner Court Holdings LLC and San Marco Holdings LLC v. Broken Sound Club Inc. | Case No. 19-CA-16023-MD | Report (filed on August 6, 2021); Deposition (August 27, 2021)
- Confidential Arbitration, Venture-funded Firm v. Investment Bank | AAA | Reports (filed November 23, 2020, and January 29, 2021); Expert Testimony (including hot-tubing) (February 5, 2021)
- DIONYSOS G.P.R.C.S. v. Ieronymakis | Report (filed June 22, 2015)
- DIONYSOS G.P.R.C.S. v. Finos Film | Report (filed May 15, 2015)

B. SELECTED CONSULTING EXPERIENCE

Derivative Securities and Credit Instruments

- Consulted on litigation involving a CFTC-registered commodity pool operator specializing in listed options on futures. Directed analyses regarding general risk profile of the fund and degree of deviation from past historical periods, and analyses regarding communications with its investors.
- Led the preparation of a Brattle report for ISDA summarizing the results of surveying market participants on the clearing of US treasury securities and repurchase agreements. Report is published on ISDA's website here.
- Consulted with ISDA and its counsel to analyze and summarize market participant responses to ISDA consultations on fallbacks for derivatives referencing IBORs. Consulted on operational and valuation issues raised by market participant respondents (including convexity adjustments) related to interest rate swaps, swaptions, and other derivatives of fixed income products that may result from a replacement of IBOR benchmarks rates with fallback rates. Brattle's series of reports are published on ISDA's website and also available here.
- Analyzed option-based portfolio strategies and volatility trading strategies, including risk management processes and oversight. Evaluated trading signals on option strategies and probability of profitable outcomes. Consulted on matters involving the suitability of investments in contingent-claim securities (like options and warrants) in investor portfolios.
- Provided expert opinion and testimony on the applicability and limitations of option valuation approaches to model real-estate assets. Assessed and critiqued the reasonableness of damages estimates.
- Assessed the economic value of equity and warrants of partners in a privately held entity and performed sensitivity analyses of such economic value with respect to volatility and cost of capital, among other parameters.
- Reviewed valuation of interest rate swaps and other interest rate derivatives in benchmark rates (LIBOR) litigation, including off-market pricing. Assessed the valuation of interest rate swaps, including the reasonableness of input assumptions based on Bloomberg analytics.
- Consulted on the implementation of an option strategy to minimize downside risk in equity portfolios. Analyzed the structure of a "collar" strategy overlaid on active and passive equity portfolios, and the hedging cost of such an approach in volatile market conditions. Estimated potential damages to investors.
- Consulted on a matter involving the valuation of bespoke equity swaps and exotic options and analyzed the economic substance of a large structured transaction. Used Monte Carlo simulation techniques to estimate the probabilities of profitable outcomes.

- Analyzed the market structure and bid-ask spreads of a portfolio of credit default swap contracts. Assessed the reasonableness and the calculation of settlement amounts and considerations of collateral upon a counterparty default under an ISDA Master Agreement. Examined aggregate mark-to-market valuation adjustments for a large credit derivatives portfolio that included bespoke illiquid credit instruments and index products.
- Consulted on the valuation of warrants embedded in special purpose acquisition company (SPAC) transactions. Analysis included analyses of disclosures to investors, dilution impact, and relative pricing against the underlying common stock of SPAC entities.

Venture Capital and Private Equity

- Provided expert opinion and testimony on the valuation of warrants granted by a venture-funded firm to an investment bank as consideration of capital raising efforts involving preferred stock and convertible notes. Analyzed and quantified the number and value of warrants adjusting for anti-dilution provisions based on the investment banking agreement and private placement memoranda. Employed simulation techniques to value warrants under various scenarios.
- Provided expert analyses and testimony on the valuation of employee stock options in a high-growth industrial company. Analyses included review of market liquidity, and price and volume of the underlying security, including its exchange-traded options, tax considerations, vesting windows, and optimal time to exercise.
- Provided expert opinion and testimony on the economic applicability of option valuation models in a real estate dispute. Analyzed relevant valuation parameters and rebutted economic damages theories.
- Retained to assess the value of an equity incentive plan components during a sequence of corporate actions involving a start-up. Analyzed the impact of such corporate actions on voting rights and assessed whether the original equity incentive objectives were preserved.
- Consulted on a dispute regarding anti-dilution provisions and possible impact on the value of shares and warrants held by an earlier round investor. Analyses included sensitivity of valuation outcome based on alternative interpretations of the relevant provisions. Supported expert opinion on valuation impact on all shares from later rounds of financing.
- Consulted and performed analyses of the impact of a down round valuation on the existing shareholders and warrant holders in a VC-funded firm. Evaluated corporate governance process and communications between independent board committee and other board members in advance of the down round.
- Analyzed the relative market value of various series of investments on venture-funded firms using option valuation methodologies. Analyzed the structure and terms of financing agreements between a start-up and its early-stage investors.

- Consulted in a dispute involving the valuation of shares of a private company in an acquisition. Consulted on the dilutive effects of down rounds of venture-funded firms and the impact on common and earlier round investors.
- Consulted in a dispute involving the valuation of convertible notes in a venture-funded firm, and whether the note agreement allowed for a repayment of principal and accrued interest in lieu of conversion into common stock.
- Assessed the value of founder stock options in a fast-growing privately funded firm and the sensitivity to valuation assumptions as a stand-alone entity versus an acquisition. Evaluated the economic position of a partner in a venture capital firm in a divorce dispute.
- Consulted in a dispute involving the economic value of compensation for services to a non-employee third-party consultant. Performed qualitative and data benchmarking analyses on alternative approaches for compensating non-employee contributors.

Digital Assets

- Provided expert reports and testimony on the fair value of a venture-funded CFTC-regulated exchange with a trading platform that offered cryptocurrency derivatives and traditional financial derivatives. Explained the economic characteristics of futures contracts and their typical use cases and regulatory considerations. Analyzed reliability of management projections and assessed fair value under the income and market approaches.
- Analyzed the relevant agreements and flow of collateral between a digital asset borrower and digital asset lender during a period of stress in cryptocurrency markets. Consulted on the actions taken by lender, including the seizing and liquidation of collateral, and analyzed whether such actions deviated from industry custom and practice and the ordinary course of business.
- Consulted during negotiations between a cryptocurrency exchange and the founding team of a cryptocurrency token/project. The analyses focused on whether certain milestones were met that would trigger payoff of various warrant agreements between the parties. Conducted market research on practices surrounding listing of new tokens, functionalities and features of decentralized exchanges (DEXs), and liquid staking protocols and current market standards.
- Provided expert opinion in a dispute surrounding the alleged stake of a co-founder in a digital assets marketplace. Analyzed relative pricing of certain NFTs' digital tokens against related fungible tokens.
- Consulted on a price impact analysis involving the disposition plan of a co-founder's stake in a major cryptocurrency. Analyzed transaction data on third-party digital asset exchanges, including price, volume, and price variation across exchanges.

- Consulted on and analyzed the correlation between the information released from an issuer of a digital token and the price of the token. Supported economic analysis of the statistical significance of observed correlation over time.
- Analyzed and prepared consulting reports on the uses and market structure of a major stablecoin. Performed economic analyses to explore the factors that contribute to volatility in major cryptocurrencies and to discriminate between correlation and causation.
- Consulted on the product structure, economic characteristics, and trading activity of cryptocurrency derivatives on a cryptocurrency exchange. Analyzed compliance requirements and disclosures in the context of the relevant regulatory framework.
- Advised on the design and use cases of a novel digital token to capture and reward social, business, and other network relationships of members.

Valuation

- Performed valuations of common and preferred equity, valuations of employee stock options, valuations of a hedge fund business, and valuations of privately held and public businesses in merger and acquisition disputes.
- Conducted many valuation analyses beyond those referenced above, including estimating the value of callable municipal bonds and of convertible bonds, analyzing the volume price relationships on options on futures contracts, and estimating the value of lower tranches in RMBS and other asset-backed securities.
- Analyzed and provided an opinion on the value of recurring royalties on a portfolio of media assets (movies and music) and the contractual claims accruing to performing actors and musicians.

Structured Finance

- Analyzed methodologies and evaluated data sources used in the valuation of residential mortgage-backed securities (RMBS) and commercial MBS (CMBS). Developed a systematic methodology to value a portfolio of illiquid asset-backed securities (ABS).
- Assessed and critiqued cash flow and waterfall models used as valuation tools of RMBS and CDOs. Analyzed prepayment assumptions and the impact of borrower options to refinance with declining rates.
- Consulted on the impact of trades by the collateral manager on expected cash flows on senior and junior tranches of a CDO structure. Evaluated the impact of assumptions about prepayments, defaults, and recoveries to pools of underlying assets. Performed sensitivity analyses on resulting cash flows.

- Evaluated historical and projected collateral performance across a range of ABS, including less-common collateral of healthcare and student loan receivables. Assessed contemporaneous valuation measures, modifications, and other servicer actions, as well as the quality and transparency of reporting by trustees. Estimated the investors' economic losses.
- Analyzed and supported expert work on industry practices and business motivation of cross-border structured finance deals between financial institutions. Investigated banking spreads that considered the tax treatment of structures.
- Reviewed and analyzed default and recovery assumptions and credit-risk models used by rating agencies in rating structured finance securities like CDOs and RMBSs. Simulated complex options and structured finance products to validate pricing and assess the profitability of trading strategies.

Financial Institutions

- Consulted on multiple financial institutions' engagements on private litigation and regulatory matters involving major investment and commercial banks, asset management firms, hedge funds, and venture capital funds, among others.
- Provided an economic analysis of the factors that affected the performance of a leveraged municipal portfolio's trading strategies. Consulted on class certification issues related to the suitability of municipal investments.
- Issued analysis that explained the structure of credit default swaps and the application of ISDA provisions upon early contract termination. Analyzed fixed-income and derivative trading desk portfolio positions and performed sensitivity analyses assuming different scenarios of benchmark LIBOR rates.

Securities Litigation

- Performed and managed consulting and expert work in securities litigation. Analyzed the reaction of securities prices to information disclosures in Rule 10b-5 matters, and in matters involving alleged violations of Sections 11 and 12 of the Securities Act of 1933.
- Consulted on the impact of corrective disclosures related to fraudulent omissions on the value of privately placed 144A notes. Quantified the monetary impact of such disclosures to investors and analyzed the market microstructure of this market using TRACE data.
- Addressed a wide range of issues relevant to securities litigation – including class certification, market efficiency, loss causation, liability, materiality, and damages. Designed and conducted event studies to measure the impact of market and industry or systemic effects on the returns of equity, fixed income, and other securities.

- Estimated class-wide damages and probed the allocation of damages to various claimholders. Studied timing and impact of short selling on security prices. When available, relied on trading patterns and trading records, including FIFO/LIFO assumptions, to quantify damages.

Asset Management

- Analyzed the impact of securities related to option-trading strategies and on volatility strategies on investor portfolios. Consulted on assessment and quantification of damages including during periods of market stress and illiquid conditions. Examined the impact of these strategies in the context of the overall asset allocation and under suitability standards.
- Analyzed general and client-specific suitability in the context of expert analysis. Assessed information provided and disclosures by financial advisors and relevant communication with advisory clients. Examined the performance of investments selected by advisors on behalf of their advisory clients against the performance of benchmarks of investments with similar investment objectives. Evaluated potential harm to investors from alleged advisor misconduct.
- Evaluated the impact of rate volatility on the profitability of municipal arbitrage trading and hedging strategies of hedge funds and the possible effect on investors. Assessed damages to mutual fund investors from exposure to CDOs.
- Assisted clients with estimating the impact of implementation errors in trading strategies of active equity portfolios and on the performance shortfall realized in customer accounts. Performed economic analyses related to the foreseeability of price changes in municipal and other fixed-income securities. Also addressed suitability issues.

C. PUBLICATIONS

- "Economic Issues to Watch in the Libor Transition," with Ryan Leary and Musa Isani, Law360 (June 2023)
- "From USD LIBOR to SOFR," with Ryan Leary and Musa Isani, Brattle whitepaper (April 2023)
- "Crisis May Trigger Collateralized Loan Obligation Litigation," with John Anthony, Law360 (July 2020)
- "Bitcoin Futures Markets: A Year Later" with Marek Zapletal, Mondaq (March 2019)
- "Recent Outperformance of Passive Investment Funds Has Provided a Rationale for Some ERISA Retirement Investors to Cry Foul. Is there a Case for Active Management?" with Christopher Laursen and John Anthony, Securities Regulation Daily (February 2019)

- "ICOs: What Are They And What Does The Future Hold?" with Sujay Dave, Securities Regulation Daily (June 2018)
- "Expert Analysis: Target Date Funds: Economic, Regulatory and Legal Trends," with Branko Jovanovic and Christopher Laursen, Law360 (December 2017)
- Target Date Funds: Economic, Regulatory, and Legal Trends, with Branko Jovanovic and Christopher Laursen (September 2017)
- "Securities Class Actions: Trading models to Estimate Individual Investor Trading Activity and Aggregate Damages," with Yingzhen Li and Torben Voetmann, The Brattle Group: Critical Thinking (May 2017)
- "Avoiding Pitfalls in the Litigation of Business Valuation," with Gary Stahlberg and Bryan Plotts, chapter in PLI Course Handbook, Basics of Accounting for Lawyers 2013: What Every Practicing Lawyer Needs to Know, Chapter 7, pp. 181-213 (2013)

D. PRESENTATIONS

- "Blockchain and Cryptocurrencies," presented at the 5th International Conference in Global Business in the Digital Age and Post-Covid-19 sponsored by University of San Francisco (June 12, 2021)
- "Blockchain and Cryptocurrencies," presented to General Motors (March 9, 2021)
- "Swap Contracts," presented at DeCal Lecture Series, Berkeley, CA (April 26, 2018)
- "Big Data in the Context of Financial Services Litigation," presented during DataLead 2014 conference, Berkeley, CA (October 2, 2014)

E. EDUCATION

- Stanford University (2006) MSc, Financial Mathematics
- UC Berkeley Haas School of Business (2005) Master of Financial Engineering
- St. John's University (1999) MBA, International Finance
- Aristotelian University of Thessaloniki (1993) BS, Pharmaceutical Sciences

F. PROFESSIONAL EXPERIENCE

- The Brattle Group (2014–Present) Principal
- UC Berkeley Haas School of Business (2013–Present) Lecturer: Undergraduate Program
- Finance Scholars Group (2012–2014) Principal

- Cornerstone Research (2006–2012) Senior Manager
- Credit Suisse First Boston, CSFBdirect (2000–2001) Manager
- DLJdirect, iNautix Technologies (2000) Program Manager
- Bear Stearns Asset Management (1999–2000) Analyst
- I.E. Gkatzimas & Partners (1996–1997) Manager
- Hellenic Armed Forces (1994–1996) Second Lieutenant (Officer-in-reserve)

G. PROFESSIONAL AFFILIATIONS

- American Bar Association (non-lawyer member)
- Bar Association of San Francisco
- Chartered Financial Analyst
- CFA Society of San Francisco

APPENDIX B: LIST OF DOCUMENTS RELIED UPON

Case Documents

- United States Bankruptcy Court for the District of Delaware, Declaration of Ioannis Gkatzimas on Behalf of TMSI SEZC Ltd., *In re: FTX Trading Ltd., et al.,* Debtors, Chapter 11, Case No. 22-11068 (JTD), (Jointly Administered).
- United States Bankruptcy Court for the District of Delaware, Expert Report of Fotios Konstantinidis, *In re: FTX Trading Ltd., et al.,* Debtors, Chapter 11, Case No. 22-11068 (JTD), (Jointly Administered).
- Master Loan Agreement between Alameda Research Ltd. And Tai Mo Shan Limited.
- United States Bankruptcy Court for the District of Delaware, Disclosure Statement for Debtors' Joint Chapter 11 Plan of Reorganization of FTX Trading Ltd. and its Affiliated Debtors and Debtors-In-Possession, *In re: FTX Trading Ltd., et al.,* Debtors, Chapter 11, Case No. 22-11068 (JTD), Jointly Administered, Docket # 19143.
- United States Bankruptcy Court for the District of Delaware, Memorandum Opinion and Order, Case 22-11068-JTD, Doc 19069, dated June 26, 2024.

Articles

- Noshaba Zulfiqar and Saqib Gulzar, 2021, "Implied volatility estimation of bitcoin options and the stylized facts of option pricing," *Financial Innovation* 7(67).
- Melanie Cao and Batur Celik, 2021, "Valuation of bitcoin options," *Journal of Futures Markets* 41(7), pp. 1007-1026.

Publicly Available Websites

- "Fundamentals: Types of Market Makers," Acheron Trading, accessed August 15, 2024 at https://acherontrading.com/blog/fundamentals-types-of-market-makers.
- "Deribit Option Wizard," Deribit Insights, accessed August 15, 2024 at https://insights.deribit.com/education/deribit-option-wizard/.
- Ian Allison, "Divisions in Sam Bankman-Fried's Crypto Empire Blur on His Trading Titan Alameda's Balance Sheet," CoinDesk, November 2, 2022, accessed February 15, 2024 at https://www.coindesk.com/business/2022/11/02/divisions-in-sam-bankman-frieds-crypto-empire-blur-on-his-trading-titan-alamedas-balance-sheet/.

Textbooks

- John C. Hull, *Options, Futures, and Other Derivatives*. New Jersey: Pearson Education, 2015, 9th Edition.

Data Sources

- SRM closing price, August 11, 2020 – November 11, 2022, via CoinMarketCap.
- SRM closing price, August 11, 2020 – November 11, 2022, via CoinAPI.
- Market Yield on U.S. Treasury Securities at 5-Year Constant Maturity, November 10, 2022 – November 11, 2022, via the Federal Reserve Bank of St. Louis.

APPENDIX C: SENSITIVITY ANALYSIS

TABLE 2: VALUATION OF THE AGREEMENT ASSUMING SRM PRICE OF $0.4063 PER TOKEN AS OF THE PETITION DATE AND VOLATILITY ESTIMATION WINDOW IS PRIOR TO NOVEMBER 2, 2022

Volatility Estimation Window			3 Months	6 Months	9 Months	1 Year
Underlying Token Price	[1]	$0.4063157				
Total Number of Tokens	[2]	$800,000,000				
Annualized Volatility						
Estimation Window up to Nov 2, 2022	[3]		70%	102%	106%	104%
Value of Option on One Token						
Based on Volatility in [3]	[4]		$0.3312	$0.3585	$0.3612	$0.3598
Total Option Value (for 800 Million Tokens)						
Based on Volatility in [3]	[5]		$264,958,369	$286,775,417	$288,926,855	$287,863,845

Sources and notes:

[1]: Instructions.

[2]: The Agreement.

[3]: Annualized volatility calculated from daily SRM returns during an estimation window prior to November 2, 2022, using pricing data obtained via CoinMarketCap.

[4]: Option value from Black-Scholes formula, using volatility in [3].

[5]: [2] x [4].

TABLE 3: VALUATION OF THE AGREEMENT ASSUMING SRM PRICE OF $0.3307 PER TOKEN AS OF THE PETITION DATE

Volatility Estimation Window			3 Months	6 Months	9 Months	1 Year
Underlying Token Price	[1]	$0.3307410				
Total Number of Tokens	[2]	$800,000,000				
Annualized Volatility						
Without Removing Min/Max Return	[3]		154%	139%	132%	124%
With Removing Min/Max Return	[4]		90%	107%	110%	107%
Value of Option on One Token						
Based on Volatility in [3]	[5]		$0.3146	$0.3084	$0.3052	$0.3007
Based on Volatility in [4]	[6]		$0.2771	$0.2895	$0.2922	$0.2898
Total Option Value (for 800 Million Tokens)						
Based on Volatility in [3]	[7]		$251,685,423	$246,733,867	$244,124,382	$240,523,606
Based on Volatility in [4]	[8]		$221,661,657	$231,609,048	$233,750,269	$231,815,765

Sources and notes:

[1]: Docket # 19143 p. 668 of 689.

[2]: The Agreement.

[3]-[4]: Annualized volatility calculated from daily SRM returns during an estimation window prior to the Petition Date, using pricing data obtained via CoinMarketCap.

[5]: Option value from Black-Scholes formula, using volatility in [3].

[6]: Option value from Black-Scholes formula, using volatility in [4].

[7]: [2] x [5].

[8]: [2] x [6].

TABLE 4: VALUATION OF THE AGREEMENT ASSUMING SRM PRICE OF $0.3307 PER TOKEN AS OF THE PETITION DATE AND VOLATILITY ESTIMATION WINDOW IS PRIOR TO NOVEMBER 2, 2022

Volatility Estimation Window			3 Months	6 Months	9 Months	1 Year
Underlying Token Price	[1]	$0.3307410				
Total Number of Tokens	[2]	$800,000,000				
Annualized Volatility						
Estimation Window up to Nov 2, 2022	[3]		70%	102%	106%	104%
Value of Option on One Token						
Based on Volatility in [3]	[4]		$0.2596	$0.2863	$0.2888	$0.2876
Total Option Value (for 800 Million Tokens)						
Based on Volatility in [3]	[5]		$207,682,217	$229,011,484	$231,057,026	$230,047,252

Sources and notes:

[1]: Docket # 19143 p. 668 of 689.

[2]: The Agreement.

[3]: Annualized volatility calculated from daily SRM returns during an estimation window prior to November 2, 2022, using pricing data obtained via CoinMarketCap.

[4]: Option value from Black-Scholes formula, using volatility in [3].

[5]: [2] x [4].