



SPAC Public Warrant Valuation

Iterative Monte Carlo Algorithm

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Special Purpose Acquisition Companies Overview

SPAC

- SPACs or blank-check corporations are publicly listed trusts of funds created with the purpose of acquiring a private company

Sponsors

- SPACs are formed by Sponsors who raise funds by selling shares in their venture at an initial public offering [IPO]

IPO

- SPACs raise money by selling securities known as UNITS. Units contain 1 share and a fraction of a warrant

Acquisition

- SPAC acquires a target company. SPAC shares become the public shares of the acquired company.

BENEFITS: SPAC vs IPO

COST

Underwriting Fees

5.5%

SPAC

7.0%

IPO

SPEED

SPAC vs IPO Speed

3x

Flexibility

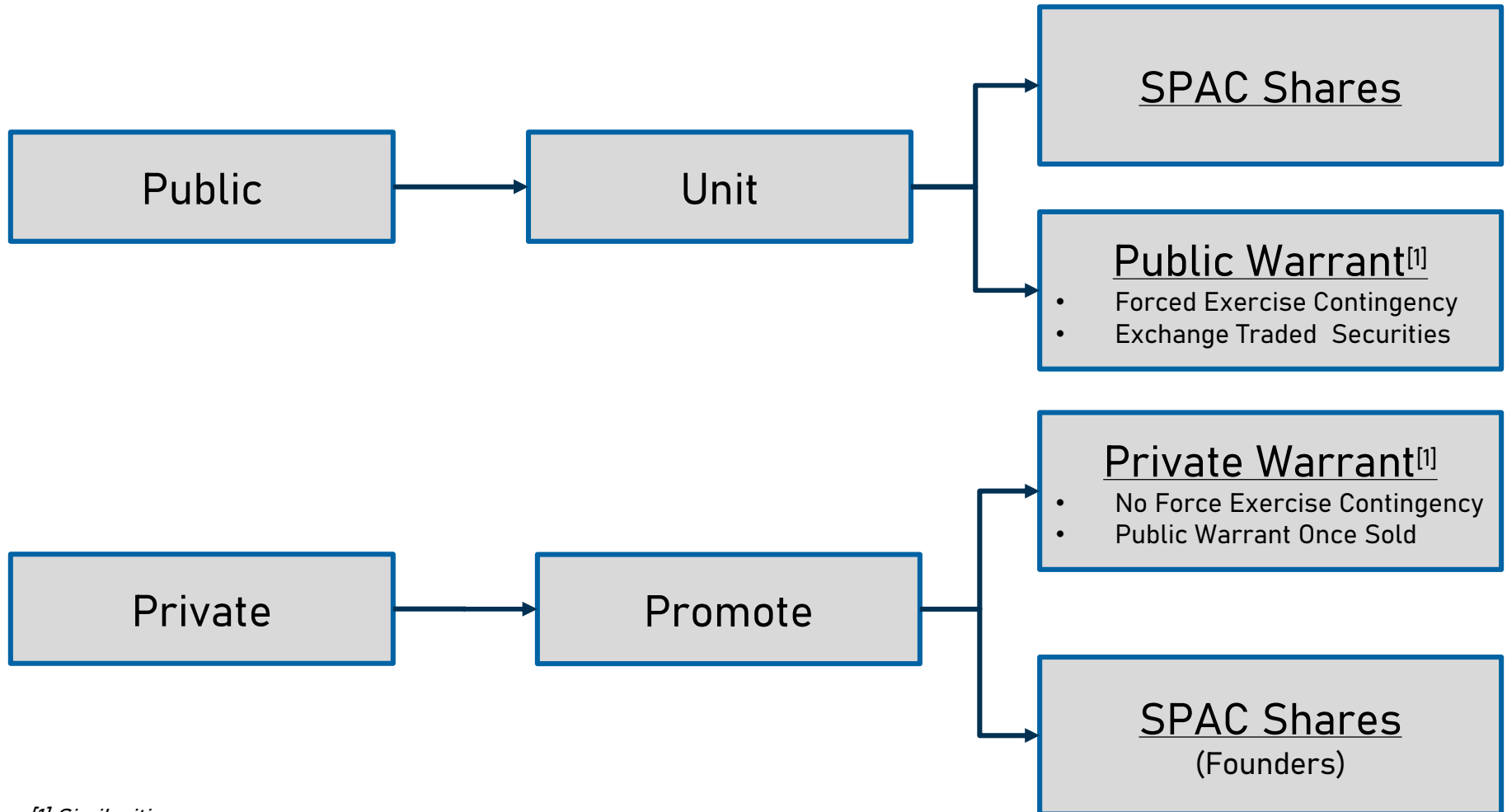
Capital Raising

**Optimal
Timing**

Life of a SPAC



SPAC Capital Structure



[1] Similarities:

- 5-Year Tenor After Acquisition
- Expire Worthless If No Acquisition
- \$11.50 Strike

SPAC Warrants

The Right To Purchase a Share of Acquired Company @
Pre-determined Strike Price (Call Option)

Public Warrants	Private Warrants
<ul style="list-style-type: none"> -Provided to investors within SPAC Unit -Exchange Traded after SPAC Unit Split -Forced Exercise Contingency: If underlying asset price is greater than \$18 for 20/30 days, the warrant is forcibly exercised @ the average price of the last 10 days in time window. -Expire worthless if no acquisition made (Otherwise, Tenor=5 years after acquisition) 	<ul style="list-style-type: none"> -Purchased Pre-IPO @ \$1 by Founders -If Private Warrant is sold to investor, it becomes a Public Warrant -No Forced Exercise Contingency -Expire worthless if no acquisition made (Otherwise, tenor=5 years after acquisition)

Cash Exercise: The usual method of exercising the option by paying the strike price and receiving a full share in return.

Cashless Exercise: Instead of paying the strike and receiving full share, investor pays nothing and receives a portion of share that is equivalent in \$ value to warrant payoff.

SEC Statement:

Accounting/Reporting Considerations

Indexation

- **Rule:** “An equity linked instrument must be considered indexed to an entity’s own stock in order to qualify for equity classification.”
- SPAC warrants include special provisions that change settlement amounts dependent on the characteristics of the holder.

Tender Offer Provisions

- **Rule:** “if an event that is not within the entity’s control could require net cash settlement, then the contract should be classified as an asset or liability, rather than as equity.”
- Warrants should be classified as a liability measured at fair value, with changes in fair value each period reported in earnings.

Warrant Restatements

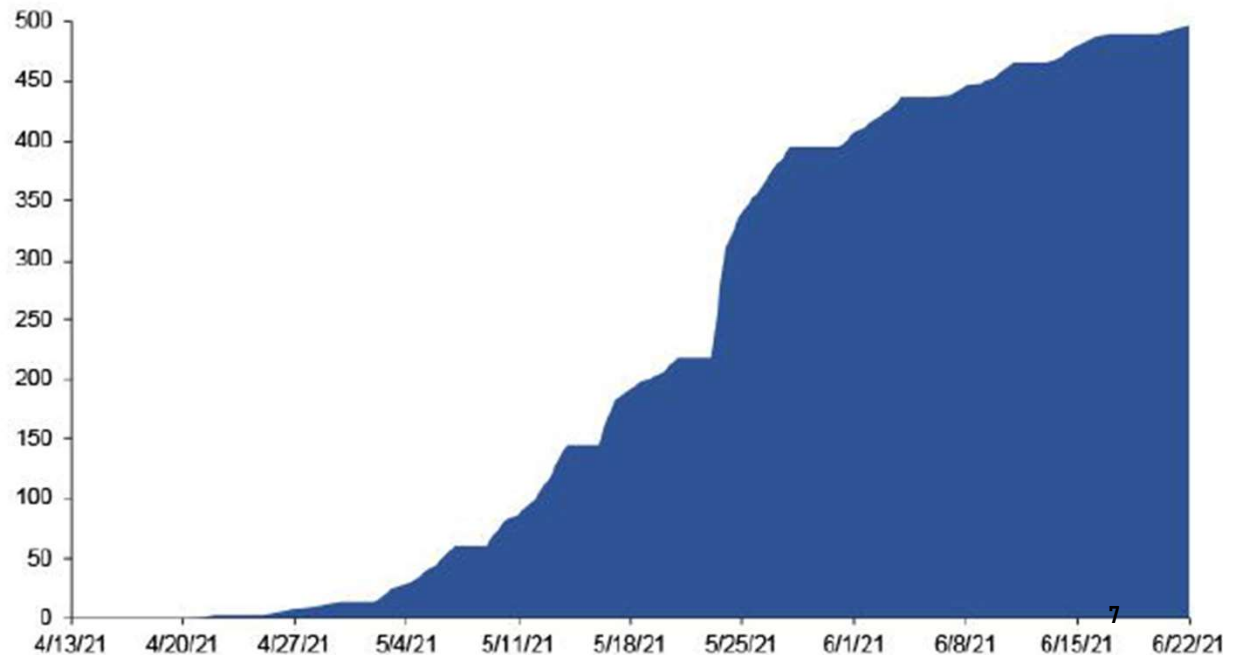
Since
April
12th

497
SPACs

62.1%

- Required to restate financial statements or revise prior disclosures
- No impact on SPAC Cash Flow
- Balance Sheet Volatility recasting will increase liabilities and reduce equity

Restatements for Warrants Issued by SPACs



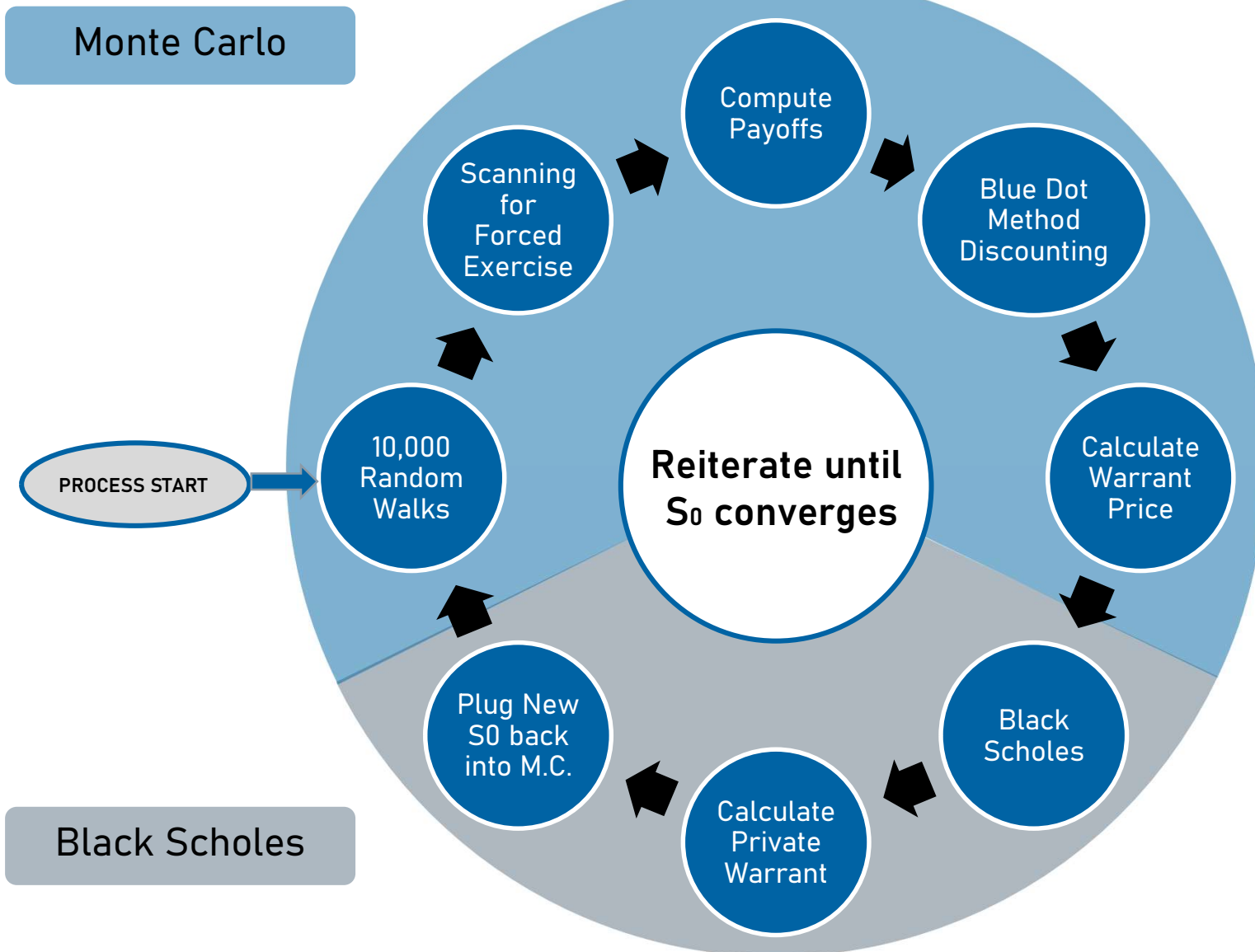
Common Currently Used Warrant Pricing Model

\$11.5 17% 5.8 1%
Strike Price Volatility Tenor Risk Free Rate

	Public	Private
Underlying Asset Price	\$10	\$9.64
Output	\$0.91	\$1.12
Probability of Acquisition	80%	80%
Warrant Valuation	\$0.73	\$0.89

[1] Model Inputs
[2] Value w/o P(Acq.)
[3] P(Acquisition)
[4] Warrant Value

Our Pricing Algorithm



Monte Carlo

PROCESS START

10,000
Random
Walks

Scanning
for
Forced
Exercise

Compute
Payoffs

Blue Dot
Method
Discounting

Calculate
Warrant
Price

Reiterate until
 S_0 converges

Plug New
 S_0 back
into M.C.

Black
Scholes

Calculate
Private
Warrant

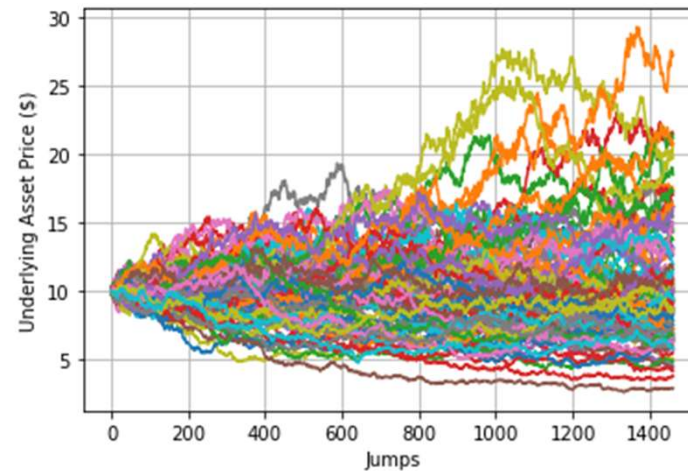
Black Scholes

Software Inputs/Outputs

```

### BEGIN INPUT PARAMETERS ###
#
# These are for StochasticProcess
S0=9.576
asset_price_volatility=0.17
risk_free=0.01045
T_yrs=5.8
steps_per_year=252
I = 10000 # number of realizations
N = 10000 # number of sample realizations used <= I
seed=2000
#
# These are for SpacWarrant
strike_price = 11.5
forced_excercise_price=18.0
days_above_forced_excercise_price=20
days_above_forced_excercise_price_window=30
avg_x_price_window = 10
is_forced_excercise = True
is_diagnostic = True
#
### END INPUT PARAMETERS ###

```



SUMMARY OF OUTPUTS

Execution Time: 8.559181356430054 minutes
Number of Iterations: 4
Probability Of Acquisition 80 %

Stock Price in: 9.576 cents

[Blue Dot Method] Warrant Price is: 84.80000000000001 cents

Stock Price Out \$ 9.576

Difference In Stock Price: 0 cents

Private Warrants Are then: 88 cents

Percent of Forced Excercise: 8.95 %

S_0 Model Convergence Results

(Why Iteration is Necessary)

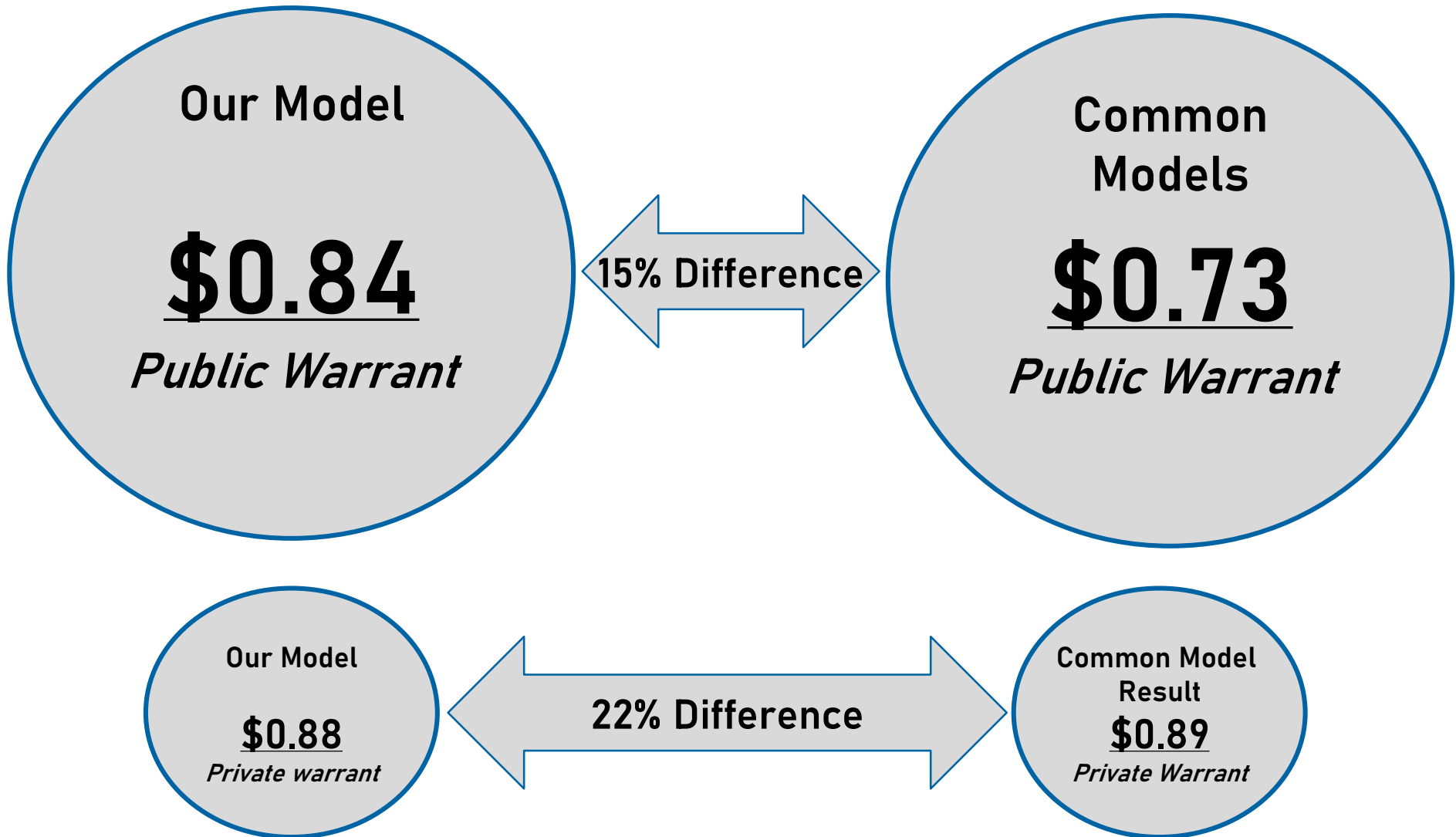
<i>ITERATION #</i>	<i>STOCK PRICE IN</i>	<i>STOCK PRICE OUT^[1]</i>	<i>Public Warrant Price^[2]</i>	<i>Difference Stock Price In vs. Out^[3]</i>
1	\$ 10.000	\$ 9.504	\$ 0.992	\$ 0.496
2	\$ 9.504	\$ 9.592	\$ 0.816	\$ (0.088)
3	\$ 9.592	\$ 9.576	\$ 0.848	\$ 0.016
4	\$ 9.576	\$ 9.576	\$ 0.848	\$ -

[1] The stock price out is calculated by computing the public warrant price and multiplying it by the warrant coverage (our example: .5) and subtracting that value from the unit price(our example: \$10). Stock price out of previous iteration is the stock price in for the next iteration.

[2]This is the result of the MonteCarlo Simulation given the stock price in. As noted above, it is used to compute the stock price out.

[3]Difference is computed by subtracting stock price out from stock price in. Valuation process repeats until difference is 0.

Pricing Algorithm Results



Summary:

Competitive Advantages

Python-based Model

- Quick and robust Modified Monte-Carlo algorithm
- Accurately scans and adjusts for all warrant contingencies

Stock Price Input/Output Consistency via Iteration

- Modified Monte Carlo & Black Scholes are iterated to converge the underlying asset price, S_0 , for both models

Appendix

Experimenting with Volatility & Prob(Acquisition)

Volatility	P(Acquisition)	Initial Warrant Value	Warrant Value
17%	50%	\$1.24	\$0.62
17%	65%	\$1.24	\$0.81
17%	80%	\$1.24	\$0.99
17%	95%	\$1.24	\$1.18
25%	50%	\$1.92	\$0.96
25%	65%	\$1.92	\$1.25
25%	80%	\$1.92	\$1.54
25%	95%	\$1.92	\$1.82
35%	50%	\$2.61	\$1.31
35%	65%	\$2.61	\$1.70
35%	80%	\$2.61	\$2.09
35%	95%	\$2.61	\$2.48