

# Undergraduate Student Investment Management Fund

Semi-Annual Presentation

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Team A | May 2020

# Team Introduction

**Fund  
Manager**



***John  
Michael  
Hayes***

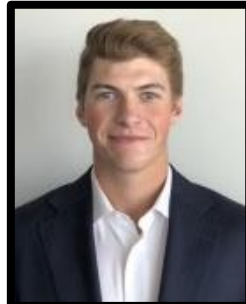
**Fund  
Analyst**



***Patrick  
Keller***



***Gabrielle  
DeGravina***



***Logan  
Robertson***



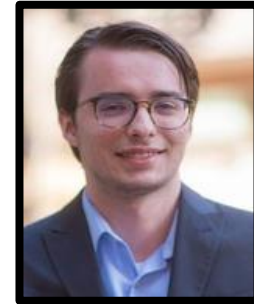
***Joseph  
Briones***



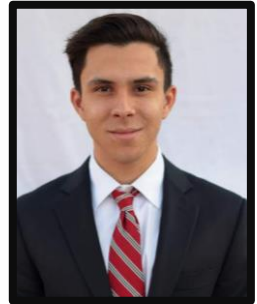
***Avinaash  
Koganti***



***Eri  
Koroli***



***Jacob  
Robinson***



***Luismario  
Higuera***

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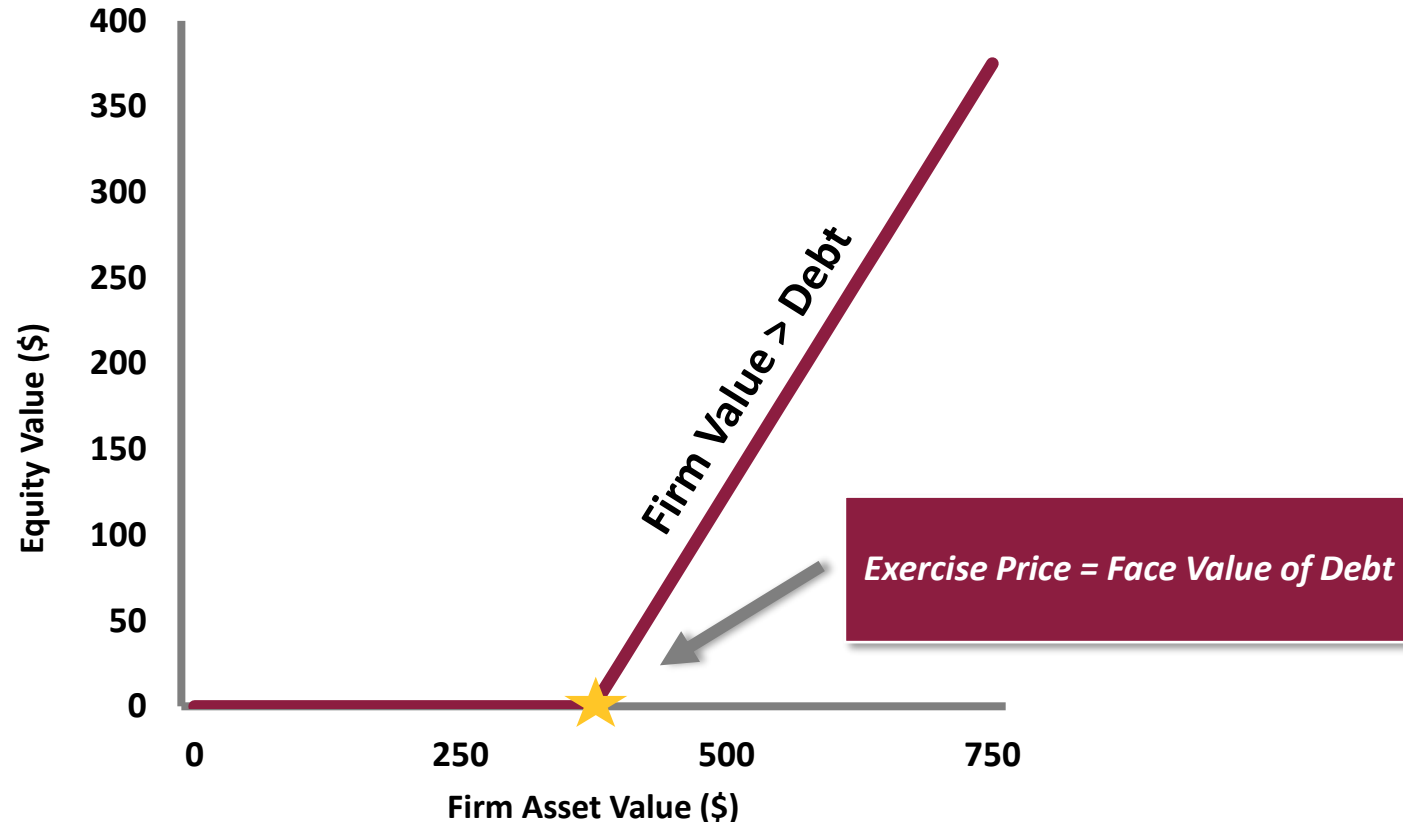
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# Investment Thesis & Strategy

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# Graphical Representation of Equity as a Call Option

Equity of a firm with debt in its capital structure is analogous to a call option on the written assets of a firm.



Black, Fischer, and Myron Scholes, 1973, "The Pricing of Options and Corporate Liabilities", *Journal of Political Economy* 81, 637–654. & Merton, Robert C., 1974, "On the Pricing of Corporate Debt: The Risk Structure of Interest Rates", *Journal of Finance* 29, 449–470.

# Investment Thesis

Eisdorfer, Goyal, and Zhdanov hypothesize that if investors do not value the default option, misvaluation can occur.

	<u>High Default Option</u>	<u>Low Default Option</u>
Traditional Valuation (e.g. DCF)	Misvalued	Appropriate Valuation
Valuation with Default Option	Appropriate Valuation	Appropriate Valuation

Eisdorfer, Goyal, and Alexei Zhdanov, 2019, "Equity Misvaluation and Default Options", *The Journal of Finance* 74, 845–898.

# Valuation of Equity in the Model

There are two components to valuing equity within the model, 1) value to the equity holders (if they were to operate into perpetuity), 2) value of default option.

$$\textit{Value of Equity} = \textit{Value to Equity Holders} + \textit{Value of Default Option}$$

Eisdorfer, Goyal, and Alexei Zhdanov, 2019, "Equity Misvaluation and Default Options", *The Journal of Finance* 74, 845–898.

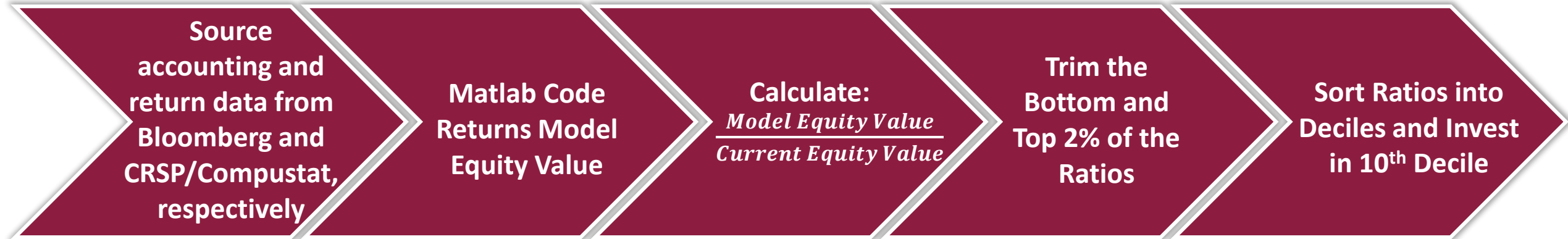
# Comparing Model Value to Market Value

Stocks are sorted into deciles according to the ratio of the equity value implied by the valuation model to the actual equity value.

Estimated Equity Value + Value of Default Option	$\frac{4 \text{ B}}{3.5 \text{ B}} = 1.14$	→	<i>Undervalued</i>
Current Market Value			
Estimated Equity Value + Value of Default Option	$\frac{3.5 \text{ B}}{4 \text{ B}} = .88$	→	<i>Overvalued</i>
Current Market Value			



# Portfolio Construction Process Overview



*\*CRSP/Compustat till 2018, supplemented with Bloomberg for current info*

# Rebalancing and Processes

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# Why Continue with the Strategy?

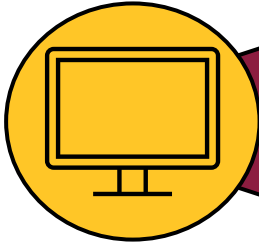
Several criteria motivated our decision to continue with the strategy through the final rebalance rather than moving to a market (S&P 500) portfolio.

1 Back-testing data from paper

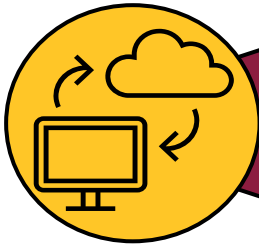
2 Frequency of rebalance

3 Learning opportunity

# Roadblocks Due to COVID-19



Due to the on going pandemic, we were unable to physically access the Bloomberg terminal provided on campus to access portfolio performances.



However, we were thankfully able to remotely access the necessary information to continue our strategy for the remainder of the investment horizon.



Unfortunately, we were unable to track shadow portfolio performances throughout the entire timeline and to perform any attribution analyses.

# Security Selection Process

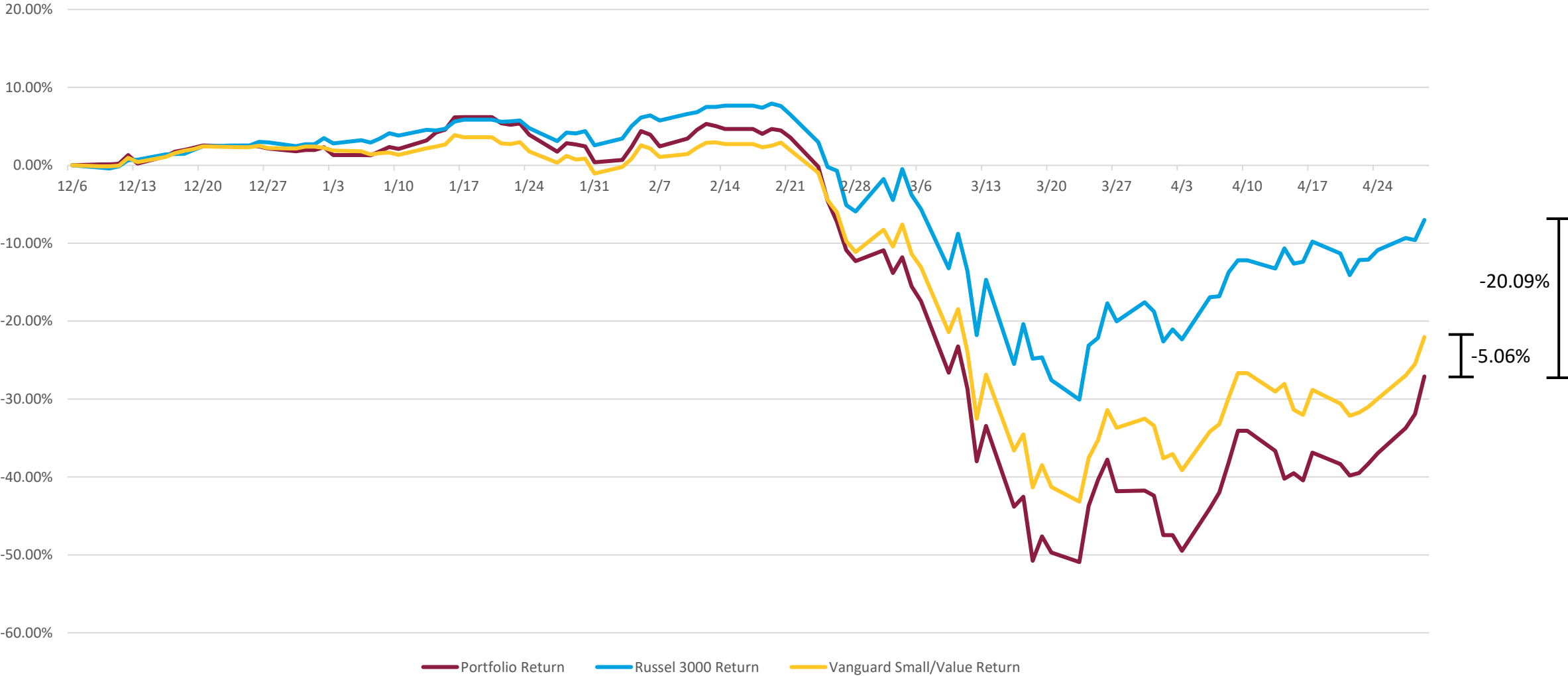
Given market backdrop of the final rebalance, we decided to deviate from previous rebalances in terms of our security selection.



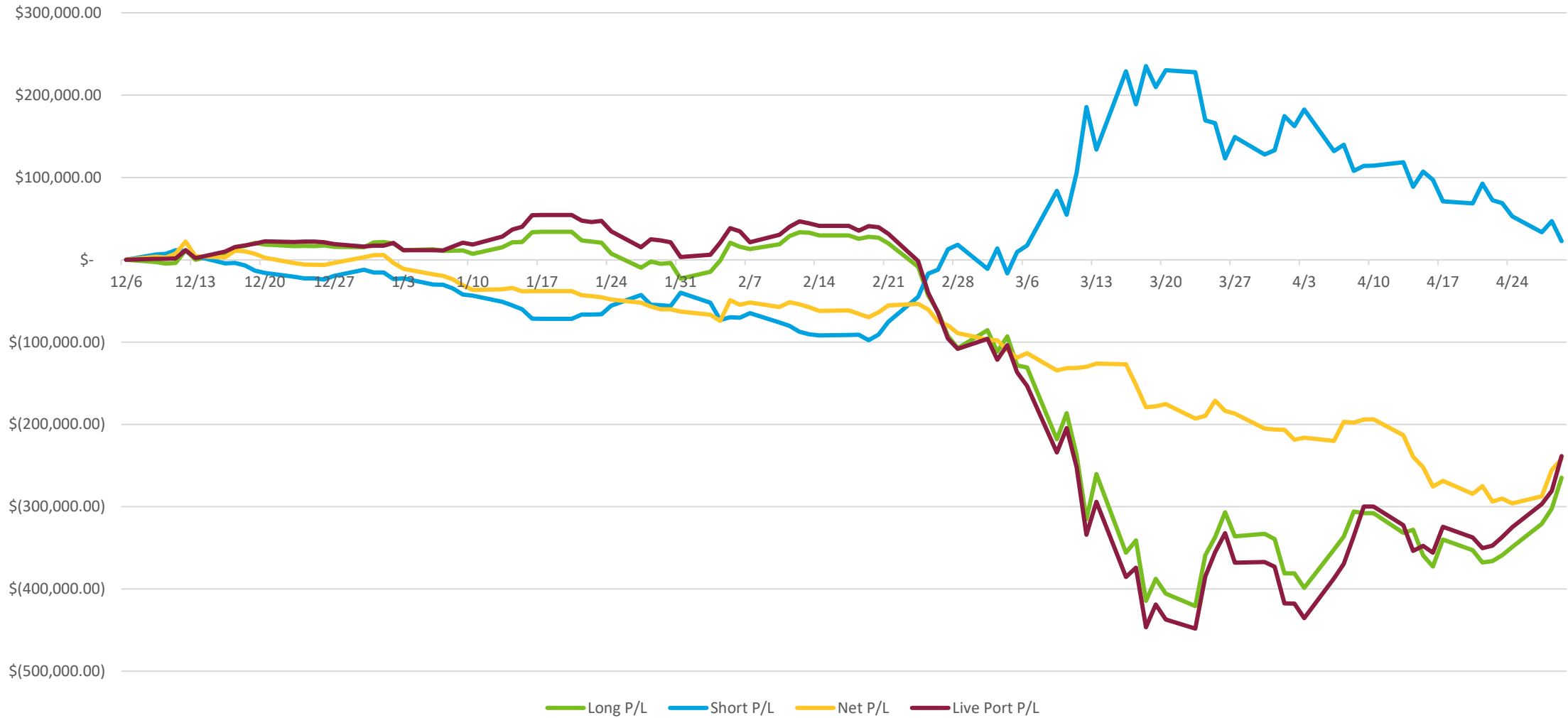
# Performance

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# Performance vs Benchmarks



# Long-Short Performance





# Appendix

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# Value of Default Option

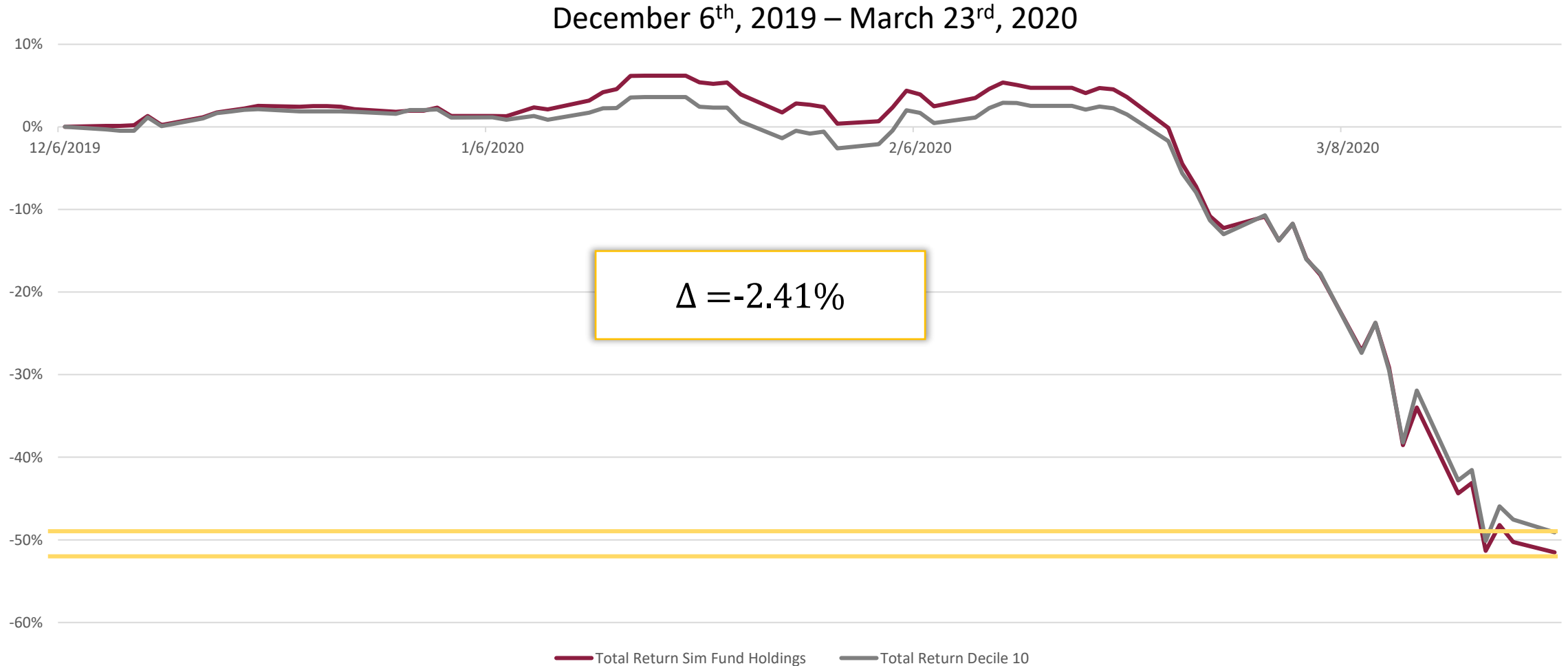
The default option can be deconstructed into two parts: 1) discounting the cash flows of a firm until an optimal stopping time, 2) discounting the cash flows of a firm into perpetuity.

Optimal  
Stopping Time

$$\text{Default option} = \sup_{T_{x_d(t)}} \mathbf{E}_{x_0}^Q \underbrace{\int_0^{T_{x_d(t)}} e^{-rt} CF_{it} dt}_{\text{Equity}} - \mathbf{E}_{x_0}^Q \underbrace{\int_0^{\infty} e^{-rt} CF_{it} dt}_{\text{Assets - Safe Debt}} \geq 0$$

Eisdorfer, Goyal, and Alexei Zhdanov, 2019, "Equity Misvaluation and Default Options", *The Journal of Finance* 74, 845–898.

# Shadow Portfolios: Active Portfolio vs. Total Decile 10



# Shadow Portfolios: Active Portfolio vs. Decile 10 Stocks Not Invested In

