Proposed Sales Practices Rules for Certain Leveraged/Inverse Investment Vehicles[1]

Mark J. Flannery, Ph.D.[2]
Bank of America Eminent Scholar in Finance
Warrington College of Business Administration, University of Florida

March 31, 2020

---

[1] This paper has been sponsored by Rafferty Asset Management LLC, the sponsor of and investment adviser to the Direxion Funds and the Direxion Shares ETF Trust. Direxion Shares ETF Trust is a family of leveraged and inverse leveraged exchange-traded funds.

[2] Professor Flannery served as the Chief Economist and Director of the Division of Economics and Risk Analysis at the SEC from 2014 to 2016. He previously worked with other U.S. regulatory agencies: part-time Senior Adviser to the Office of Financial Research from 2011 to 2014, the New York Fed's Financial Advisory Roundtable (2006-2014) and the Federal Reserve System's stress-test-related Model Validation Council (May 2012-2014, chair 2013-2014). In 2003, he helped establish the FDIC's Center for Financial Research and then served as co-director and senior adviser until 2007. Professor Flannery holds economics degrees from Princeton (A.B.) and Yale (M.A., M.Phil., and Ph.D.).

I. INTRODUCTION

1. On November 25, 2019, in connection with rules relating to the use of derivatives by registered funds,[3] the SEC proposed two new sales practices rules[4] that would restrict the conditions under which individual investors would be allowed to trade certain leveraged and inverse investment vehicles ("L/I funds"). This paper identifies serious concerns with the economic analysis presented in the Proposing Release and argues that it substantially overstates the need for these new rules.

2. The proposed sales practices rules would apply to any customer of a broker-dealer[5] or client of an investment adviser who is a "natural person," including customers in self-directed accounts.[6] The new rules would require the broker or adviser to affirmatively approve an investor for trading L/I funds after conducting due diligence (which must include, at a minimum, collecting information on a list of items articulated by the proposed rules[7]). In order to approve an account, the broker or investment adviser must have a "reasonable basis to believe that the customer or client is capable of evaluating the risk associated with these products."[8] Having reviewed the Proposing Release and other materials cited there, I believe that the proposed sales practices rules are not supported by sound economic analysis.

3. The proposal appears to accept an incorrect premise that L/I funds are inherently unsuitable for individual investors for any holding period longer than one day. The proposal also accepts the corollary view that investors holding L/I funds for longer time periods must not understand the product and are using them inappropriately.

4. As explained in Section II below, this view is neither accurate nor supported by sound economics. Investors might find L/I funds to be the most efficient investment vehicle to achieve their objectives, including over time horizons significantly longer than one day. Thus, a finding that a significant percentage of L/I investors hold their positions for medium or longer-term

[3] "Use of Derivatives by Registered Investment Companies and Business Development Companies; Required Due Diligence by Broker-Dealers and Investment Advisers Regarding Retail Customers' Transaction in Certain Leveraged/Inverse Investment Vehicles," Release No. 34-87607, November 25, 2019 ("Proposing Release").

[4] Proposed Exchange Act rule 15l-2 and Proposed Investment Advisers Act rule 211(h)-1.

[5] I use the terms broker and broker-dealer, and adviser and investment adviser interchangeably throughout this paper.

[6] Proposing Release, p. 176.

[7] Proposing Release, pp. 187-188.

[8] Proposing Release, p. 34.

horizons is not evidence of misunderstanding or misuse. In fact, the Proposing Release does not appear to have considered any actual data on investor holding periods, and offers no meaningful evidence as to whether investors hold for longer periods or, more generally, whether a substantial proportion of investors misunderstand the product.

5. In sections III through VII below, I evaluate systematically whether the economic analysis in the Proposing Release is complete, rigorous, and sufficient to support a fully informed assessment of the economic impact of the proposed sales practices rules. I find that it does not. The economic analysis makes virtually no effort to explain why new sales practices rules are needed. It fails to fully consider within its economic baseline the robust regulatory regime already in place to address investor protection concerns, and thus does not establish a meaningful benchmark for evaluating whether the proposed rules are likely to generate any benefits. Given that the estimated implementation costs of the rules are remarkably high compared to the size of the L/I fund industry, brokers and investment advisers may simply discontinue offering access to these products. The economic analysis does not consider this potential unintended consequence and the costs associated with limiting investor choice in this way. Nor does it consider what alternative instruments investors would likely turn to if they no longer have access to L/I funds, and whether some of these alternatives might expose investors to similar or even greater risks.

II. FINRA'S 2009 GUIDANCE LED THE SEC TO INCORRECT CONCLUSIONS REGARDING INVESTOR CONFUSION AND MISUSE OF L/I FUNDS

6. The Proposing Release appears to accept at face value the view expressed in FINRA's 2009 Guidance that "inverse and leveraged ETFs that are reset daily typically are unsuitable for retail investors who plan to hold them for longer than one trading session."[9]

7. A daily L/I fund aims to match a multiple of the underlying index return over a single trading day. The holding period return of a daily L/I fund held for longer than one day generally does not equal the fund's daily stated multiple multiplied by the return of the underlying index—even if the fund exactly meets its stated investment objective each day. Depending on the path of index returns during the period the LI/fund is held, the L/I fund could return more or less than the daily stated multiple of the index return.

[9] FINRA Regulatory Notice, 09-31, "Non-Traditional ETFs," (June 2009), available at https://www.finra.org/rules-guidance/notices/09-31 ("FINRA's Guidance"). FINRA's Guidance provides two examples of adverse outcomes for a single holding period from December 1, 2008 to April 30, 2009, where the L/I funds' returns move in *opposite* directions from the index return, but neither FINRA nor the SEC have shown that any investors actually held the two exemplar ETFs over the specified period. *See also* Proposing Release, p. 178, and notes 311 and 312.

8. This deviation between L/I funds' longer-run returns and the stated daily multiple of the underlying index return underlies the incorrect conclusion in FINRA's Guidance that the funds are unsuitable to hold for longer than one day. The SEC's primary concern with respect to L/I funds appears to be that investors may mistakenly believe that the fund is designed to match the daily stated return multiple over any holding period longer than one day:

> buy-and-hold investors in a leveraged/inverse fund who have an intermediate or long-term time horizon … may experience large and unexpected losses or otherwise experience returns that are different from what they anticipated.[10]

The entire motivation of the proposed sales practices rules accepts as truth that L/I funds are fundamentally unsuitable for investors to hold over periods longer than one trading day. In this respect, FINRA's Guidance is fundamentally flawed.

9. The remainder of this section provides additional economic analysis to develop this point. Section II.A uses a simple example to explain why the L/I funds' daily portfolio rebalancing results in multi-day holding period returns that deviate from the buy-and-hold leveraged portfolio without rebalancing. I also show that the effects of rebalancing on an L/I fund investor's return may be positive or negative. Section II.B provides data analysis showing how closely historical realized returns on L/I funds have tracked the buy-and-hold leveraged return without rebalancing, even over longer holding periods. As expected, the funds tend to perform slightly better than the leveraged buy-and-hold returns over periods of very positive or very negative index returns, and tend to underperform slightly in periods when the index is flat. Large outliers of the kind discussed in FINRA's Guidance are rare. In light of this evidence, Section II.B explains why individual investors with certain views might find the products a reasonable vehicle to meet their objectives over medium or longer-term horizons, even after taking into account the effects of compounding.

[10] Proposing Release, p. 178

A. Overview of L/I Funds and the Effects of Compounding and Rebalancing on Holding Period Returns

10. L/I funds were introduced in the 1990s, and include funds structured as traditional mutual funds as well as exchange-traded funds ("ETFs"). According to the Proposing Release, leveraged/inverse ETFs account for approximately 85% of current L/I fund net assets.[11]

11. L/I funds are investment vehicles that seek to earn a return equal to a fixed multiple (other than positive one) of an underlying index return over a specified holding period, typically one trading day.[12] An investor that buys L/I fund shares at the close on one date and sells at the close the following date should earn approximately the stated multiple of the underlying index return for that date. At the end of each trading day, the L/I fund rebalances to seek to achieve its stated objective on the next trading date. This rebalancing reflects the day's index change: if the underlying index increased (decreased), the L/I fund must increase (decrease) its exposure to the index to maintain a one-day exposure level equal to the stated multiple of the index return.[13]

12. To help understand L/I fund performance, consider a simple comparison between (1) an investor who constructs a leveraged "buy and hold" portfolio by buying an unleveraged index ETF on margin and never rebalancing, and (2) an investor who buys and holds a leveraged fund that is rebalanced daily. The first investor's cumulative buy-and-hold return would essentially be a constant multiple of the index return.[14] However, this buy-and-hold strategy varies the amount of leverage and the level of exposure to the index over time, depending on the index returns. As the index rises (falls), the investor's proportional exposure to the index decreases (increases). By contrast, the L/I fund adjusts its leverage and market exposure at the end of each trading day to

[11] Proposing Release, p. 257, and note 468. As of September 2019, L/I ETFs, L/I mutual funds, and exchange-listed commodity- or currency-based trusts or funds had total net assets of $33.9 billion, $4.9 billion, and $1.2 billion, respectively, for total industry net assets of $40 billion. L/I funds structured as traditional mutual funds were introduced by Rydex in 1993 and are currently offered by Guggenheim. See, Guggenheim Investments, "Nova", available at https://www.guggenheiminvestments.com/mutual-funds/fund/rynvx-nova.

[12] A fund's one-day operating goal (stated multiple) does not imply that investors can rationally use them only to hedge or take a speculative position in short-term index returns.

[13] The actual return may differ slightly from the stated multiple of the underlying index daily return due to transaction costs and tracking error. The rebalancing trade goes in the same direction for leveraged long funds and for inverse funds. L/I funds typically use derivative positions to change their daily exposure to the underlying index, usually swaps or futures.

[14] The actual return would be lower than this due to the interest paid on the margin loan.

maintain a constant target exposure to the next day's index return. The holding period returns for these two strategies diverge because they utilize different amounts of leverage over time.[15]

13. Now I present a simplified example to demonstrate the differences between an L/I fund's return and the return to a simple buy-and-hold leveraged index position. Figure 1 shows the performance over two days for two investors who choose two different portfolios on Day 0. The first investor buys on 50% margin to achieve a leverage ratio of 2X, and does not rebalance over time. This is done by investing $200 in the index, of which $100 is the investor's own money and $100 is borrowed from a broker. The second investor invests $100 in a leveraged 2X fund. Three scenarios are considered: a rising market (index level increases from 100 to 102 to 104); a falling market (index decreases from 100 to 98 to 96); and a flat market overall (zero cumulative index return) with interim volatility (index rises from 100 to 102 then falls back to 100).

FIGURE 1
Comparison of Buy-and-Hold Margin Strategy vs. Investment in 2X Daily Leveraged Fund

			Scenario 1 Rising Market		Scenario 2 Falling Market		Scenario 3 Flat Market	
		Day 0	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2
Index Value	[1]	100.00	102.00	104.00	98.00	96.00	102.00	100.00
Index Return	[2]		2.00%	1.96%	-2.00%	-2.04%	2.00%	-1.96%
Buy and Hold on Margin:								
Leverage Ratio (at start of day)	[3]		2.00	1.96	2.00	2.04	2.00	1.96
Investment Value (at end of day)	[4]	$100.00	$104.00	$108.00	$96.00	$92.00	$104.00	$100.00
Daily Return	[5]		4.00%	3.85%	-4.00%	-4.17%	4.00%	-3.85%
2-Day Holding Period Return	[6]			**8.00%**		**-8.00%**		**0.00%**
2X Daily Leveraged Fund:								
Leverage Ratio (at start of day)	[7]		2.00	2.00	2.00	2.00	2.00	2.00
Investment Value (at end of day)	[8]	$100.00	$104.00	$108.08	$96.00	$92.08	$104.00	$99.92
Daily Return	[9]		4.00%	3.92%	-4.00%	-4.08%	4.00%	-3.92%
2-Day Holding Period Return	[10]			**8.08%**		**-7.92%**		**-0.08%**
Difference in 2-Day Holding Period Return	[11]			**0.08%**		**0.08%**		**-0.08%**

[15] As I explain in Section V.A, L/I funds clearly disclose and explain these possibilities in their summary prospectuses.

14. Both investors earn a return equal to two times the index return on Day 1 of each Scenario. If the index increases by 2%, each investor gains 4%, and if the index decreases by 2%, each investor loses 4%. (Compare rows 5 and 9.)

15. The buy-and-hold investor's sensitivity to the index return on Day 2 depends on whether the Day 1 return was positive or negative. Recall that this investor never changes the amount she has borrowed. If the index increased on Day 1 (Scenario 1 or 3), the buy-and-hold investor's exposure fell relative to her new investment value, meaning her leverage fell (see row 3) and she therefore will be less exposed to Day 2 index returns.[16] By contrast, if the index had fallen on Day 1 (Scenario 2), her leverage (total exposure relative to investment value) would have risen and she will be more exposed to subsequent index returns: 204% vs. her starting exposure of 200%.

16. In contrast, the L/I fund's portfolio rebalancing is designed to achieve a return on Day 2 equal to twice the index return on Day 2, as in row 7. The required rebalancing depends on the Day 1 return. If the index increased on Day 1 (Scenario 1 or 3), the fund's leverage (total exposure relative to investment value) fell and it will need to increase its exposure to return its leverage ratio back to 2.0. By contrast, if the index fell on Day 1, the fund's leverage rose and it will need to reduce its exposure to the index. Because the rebalancing investor has different average leverage over the 2-day holding period, her realized returns in row 10 differ from those of the buy-and-hold investor in row 6.

17. The net result (shown in row 11) indicates two important points. First, with a unidirectional path for the index (Scenario 1 or Scenario 2), a rebalancing investor's return exceeds that of the leveraged buy-and-hold investor. Second, when daily returns are volatile but the holding period return is flat (Scenario 3),[17] the rebalancing investor underperforms the buy-and-hold investor.[18]

18. Despite its simplicity, this two period example captures the dynamics that occur over longer periods. Appendix A provides a more detailed explanation of Scenario 3. Figure 1 and

[16] This investor's portfolio now consists of $204 in the index and a margin loan of $100, for a net investment value of $104. This investor's leverage ratio is no longer 2, it is now 204/104, or approximately 1.96. The risk level of this investor's position has decreased because the natural leverage in the position changes as the market moves.

[17] This is the type of return pattern emphasized by FINRA's Guidance.

[18] Note that neither of these points depends on how the L/I fund achieves its index exposure. In other words, the use of derivatives has nothing to do with the longer-run return deviation between a buy-and-hold strategy and an L/I fund's returns. Instead, the return deviations depend on the reset frequency, the multiplier used, and the path followed by the reference index.

Appendix A illustrate how rebalancing and compounding of returns affect the relative performance of L/I funds compared to the buy-and-hold portfolio returns – the L/I fund will outperform the leveraged buy-and-hold portfolio in rising markets and in falling markets, and will underperform in flat but volatile markets. The relative performance depends on the sequence of rebalanced index returns. In the following section, I document the actual performance of these products over multi-day holding periods relative to the funds' daily stated index multiple.

B. Empirical Analysis of Extended Holding Periods and the Impact on L/I Fund Returns

19. As explained above, the Proposing Release seeks to protect investors from an incorrect understanding that L/I fund performance should reflect a constant multiple of its underlying index return over the entire holding period. Given its centrality to the proposed rule, I would have expected the SEC to examine the typical magnitude of deviations between L/I fund realized returns vs. a buy-and-hold leveraged return over holding periods longer than one day. They did not. To provide evidence along these lines, I investigated how often the historical realized returns on Direxion's largest L/I funds[19] deviated from the stated multiple of their underlying index return, and how severe those deviations were, for holding periods of 21 trading days (i.e., approximately one month).

20. The charts below, plus those included in Appendix C, demonstrate that L/I funds have generally tracked the buy-and-hold leveraged returns over holding periods well in excess of a single day. Deviations from the stated daily multiple of the index tend to be in the expected direction: the L/I fund outperformed the stated daily multiple of the index return when the index return was large and underperformed when the index return was small. While there are some large deviations, particularly around the time of the financial crisis, the funds overall do a very good job of delivering returns that are highly correlated with their underlying indices, over periods longer than one day.

21. Consider the Direxion Daily S&P 500 Bull 3X Shares ETF, whose holding period returns are plotted against its underlying index in Figure 2 below, for each possible (overlapping) 21-day holding period from the fund's inception (November 5, 2008) through March 17, 2020.[20] The

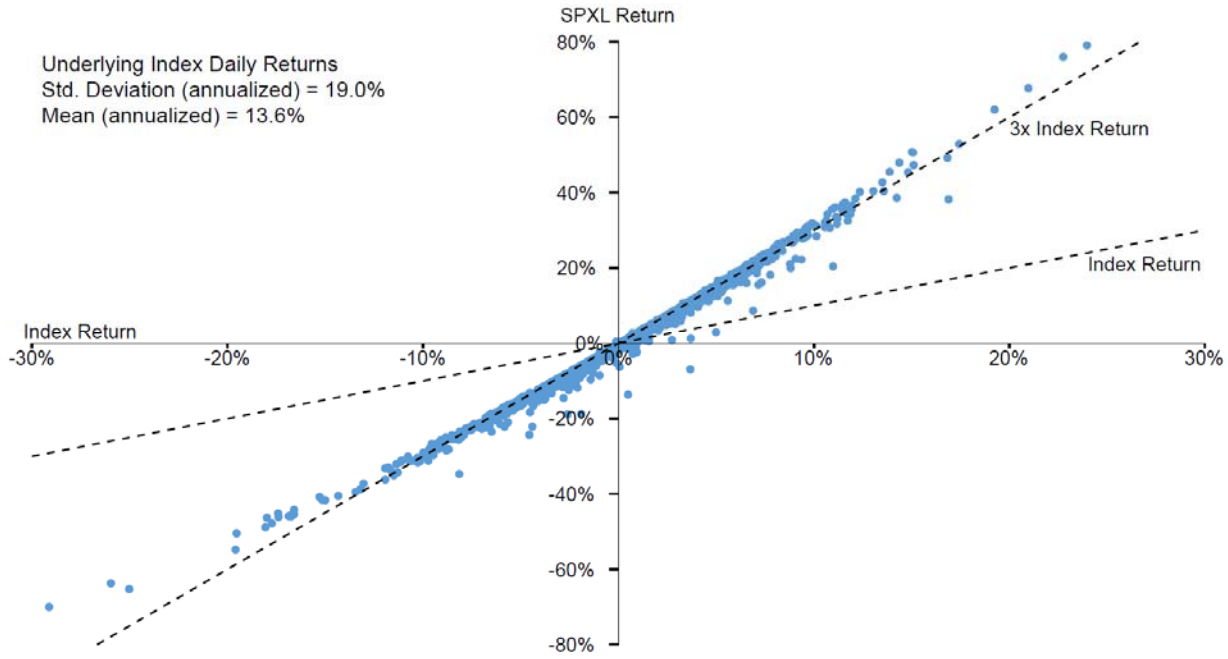
[19] I focus on daily L/I funds for this analysis. In the case of Direxion, all of its daily L/I funds are ETFs. Specifically, I considered the ten L/I ETFs with the largest average net assets over the period from March 18, 2015 to March 17, 2020.

[20] See Appendix B for more detail on the methodology used to calculate holding period returns.

steeper of the two dashed lines represents three times (i.e., the stated multiple) the underlying index holding period return, which might describe a naïve investor's expected return pattern over any holding period. Figure 2 shows that over the past approximately 11 years, the 21-day holding period return of the Direxion Daily S&P 500 Bull 3X Shares ETF was almost always in the same direction as the underlying index holding period return[21] and generally tracked the stated (3X) multiple of the index holding period return quite closely. The paucity of dots in the lower right quadrant indicates that the ETF share price infrequently moved in the opposite direction of the underlying index when the underlying index return was positive. Further, there were many periods for which the ETF outperformed 3 times the index return. Over all of the 21-day holding periods plotted in Figure 2, the mean (median) L/I share return was 3.12% (4.46%), compared to the mean (median) underlying index return of 1.20% (1.69%). Note that these monthly ETF returns correspond to annualized mean (median) holding period returns of 45% (69%).

[21] The ETF return was in the same direction as the underlying index return more than 97% of the time.

FIGURE 2
3X S&P 500 Bull ETF ("SPXL") vs. Underlying Index 21 Trading Day Returns (Rolling)
11/5/08 – 3/17/20



Source: Daily closing prices provided by Direxion

Note: SPXL returns are adjusted for dividends and stock splits. The Underlying Index refers to the Russell 1000 Index ("RU10INTR") for the period prior to 6/29/12, and the S&P 500 Index ("SPXT") for the period starting 6/29/12.

22. Another way to appreciate the generally benign nature of the Direxion Daily S&P 500 Bull 3X Shares returns is to compute conditional returns. For example, when the underlying index return was greater than 0% but less than 10% over a 21-day period, an investor in this ETF would have earned a positive holding period return 97% of the time, and 95% of the time the investor's return would have exceeded the underlying index return. While the investor would have lost money (i.e., had a negative holding period return) 3% of the time when the underlying index return was greater than 0% but less than 10%, the average loss during these periods was only 1.0% and the majority of such instances were associated with losses of less than 1%. Indeed, with the exception of three overlapping holding periods that fell between November 2008 and December 2008, the ETF's one-month return was never less than -3% when the underlying index return was positive. Moreover, when the underlying index increased by 10% or more over a 21-day period, the investor's return would have been greater than the underlying index return 100% of the time, and 65% of the time the investor would have outperformed three times the underlying index return.

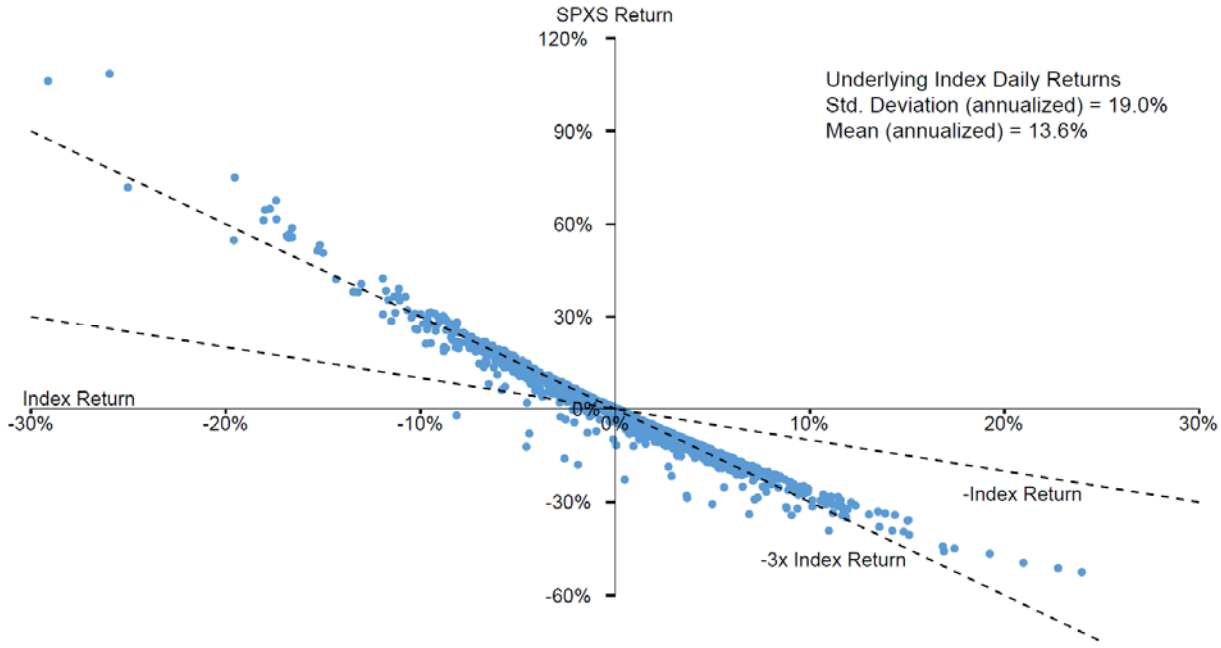
23. Let me emphasize here that, as I explain in Section IV.B, there is no particular reason to believe that investors hold these ETF shares predominantly for 21 days.[22] Rather, these examples are provided to refute FINRA's assertion that L/I funds are unsuitable for investors who plan to hold them for longer periods.

24. Figure 3 plots similar returns for the analogous "bear" fund (Direxion Daily S&P 500 Bear 3X Shares ETF). Once again, the fund's 21-day returns generally tracked the stated multiple (-3X) of the index return,[23] with slight underperformance when the index return was relatively flat and outperformance when the market was significantly up or down. For example, when the underlying index return was less than 0% but greater than -10% over a 21-day period, an investor in this ETF would have earned a positive holding period return 89% of the time, and 84% of the time that return would have exceeded the inverse of the underlying index return. An investor would have lost money (i.e., had a negative holding period return) 11% of the time, despite a fall in the index. The average loss in these periods was -1.83%, with the majority or losses less than 1%. Moreover, when the underlying index return was less than or equal to -10%, the ETF return was greater than the absolute value of the index return 100% of the time and greater than 3 times the absolute value of the index return 71% of the time. Over all these 21-day holding periods, the mean (median) L/I share return was -3.93% (-5.55%) compared to the mean (median) index return of 1.20% (1.69%). In other words, the L/I fund's mean realized monthly return was very close to its stated multiple of the underlying index return.

[22] I also evaluated L/I fund returns over 5 and 126-day holding periods in Appendix C, but, again, there is no reason why actual investors should have these specific holding periods.

[23] The ETF return was in the opposite direction as the underlying index return more than 96% of the time.

FIGURE 3
3X S&P 500 Bear ETF ("SPXS") vs. Underlying Index 21 Trading Day Returns (Rolling)
11/5/08 – 3/17/20



Source: Daily closing prices provided by Direxion

Note: SPXS returns are adjusted for dividends and stock splits. The Underlying Index refers to the Russell 1000 Index ("RU10INTR") for the period prior to 6/29/12, and the S&P 500 Index ("SPXT") for the period starting 6/29/12.

25. Most of the L/I funds I reviewed had qualitatively similar results, although the Daily S&P 500 Bull and Bear funds showed some of the most reliable returns. Appendix C provides graphs similar to Figures 2 and 3 for the other eight of Direxion's ten largest funds by assets under management. Each fund's returns are plotted over three alternative (multi-day) holding periods: 5, 21, and 126 trading days.[24] Some funds' returns track closer to the underlying index than others, in part because some indices are more volatile (and volatility tends to make the multi-day return deviate from the stated multiple). Generally, though, the L/I funds provided exposure in the indicated direction even when evaluated over longer holding periods. The L/I fund returns often outperformed the stated multiple of their underlying index return, particularly when the underlying index return was large.

[24] My analysis includes the recent period of market volatility in February and March 17, 2020. I find that the L/I funds generally performed as expected during this period, consistent with my conclusion that these products can be useful for investors pursuing certain strategies.

26. In the extreme, some L/I funds have dramatically outperformed the stated multiple of the underlying index return over the past decade. For example, an investor who purchased shares of the Direxion Daily S&P 500 Bull 3X Shares ETF on December 31, 2009 and held for ten years would have realized a holding period return of 1,473%, more than 5.7 times the underlying index return of 257%. The same is true for one of the funds identified in FINRA's Guidance (2009) as having a large negative return over a particular 5-month holding period:[25] the Direxion Daily Financial Bull 3X Shares ETF[26] returned 834% over the same ten-year period, more than 3.5 times its underlying index return of 235%. These fund returns over a protracted bull market indicate that an investor wishing to bet on a market increase could have done very well holding leveraged index funds despite their daily rebalancing policy.

27. The concern that L/I funds are a poor investment choice seems to assume that the typical investor in these funds seeks a specific multiple of the index return over some specific multi-day period. This view reflects an incomplete assessment about how investors use L/I funds and why investors may rationally hold daily L/I funds for multi-day holding periods. Some investors may maintain a strongly bullish (or bearish) view of the market for a prolonged period of time. At any point in time, an L/I fund's daily rebalancing exposes it to the stated multiple of the next day's index return. Regardless of the fund's realized performance to date, therefore, it remains a viable means of gaining if the underlying index moves as an investor expects it to move. The investor's total exposure to the index will increase as the fund makes money or decrease as the fund loses money, features that some investors might find attractive. If an investor seeks broad exposure to general market movements, multi-day holdings of an L/I fund may be the least expensive means of accomplishing this objective. As the SEC's Division of Economic and Risk Analysis noted in November 2019, "[leveraged ETFs] can offer a cost-effective, easily accessible, and generally liquid tool to increase or decrease such exposure [to an underlying asset class]."[27]

28. In summary, my analysis of historical returns on L/I funds over longer holding periods suggests that FINRA's Guidance is flawed, and that these products can be a useful tool for individual investors who wish to take strong directional positions over longer periods of time to meet their objectives. While an investor may be able to replicate the type of payoff provided by

[25] FINRA's Guidance, p. 2.

[26] This fund "seeks daily investment results, before fees and expenses, of 300% of the daily performance of the [Russell 1000 Financial Services] Index." See Direxion Shares ETF Trust Prospectus.

[27] Division of Economic and Risk Analysis, "Economics Note: The Distribution of Leveraged ETF Returns," November 2019 ("DERA Note"). DERA Note, p. 1. Consistent with this observation, the Proposing Release notes the SEC's desire to preserve investor choice in these areas. See Proposing Release, pp. 33, 180-181.

an L/I fund using alternative strategies, such as buying on margin, short selling, or using futures, these other mechanisms may be more expensive and require greater financial expertise than simply trading L/I funds. Regulation T requires a minimum initial margin of 50% for investors that trade in regular margin accounts,[28] limiting maximum initial exposure to the equivalent of a 2X long position, or a -2X short position.[29] Both margined and short positions may require additional injections of capital to accommodate margin calls, and if the investor is not actively monitoring communications from the broker (or for other reasons fails to respond to the margin call) she could be forced out of the position. Moreover, the margin borrowing rate for individual investors is likely higher than the cost that an L/I fund incurs to achieve a similar amount of exposure through a total return swap. Investors could alternatively use futures to gain a leveraged exposure to the underlying index, but trading futures can be more complex than purchasing an L/I fund, and the investor may need to open a new account with a futures commission merchant.[30] Moreover, futures do not currently exist for all the indices for which L/I funds exist.

III. ECONOMIC ANALYSIS IN THE SEC RULEMAKING PROCESS

29. A rigorous economic analysis helps the SEC consider whether rulemaking is needed and whether proposed rules achieve desired policy goals in the most efficient manner. While serving as the SEC's Chief Economist from 2014-2016, I oversaw the production of these economic analyses to assure that they were economically valid and complete. According to guidance developed by SEC's economists and the general counsel's office, and published by the SEC in 2012,[31] an economic analysis for rulemaking must include four specific components:

(1) Identifying the need for the rulemaking and explaining how the proposed rule will meet that need

The starting point and foundation for a proposed rule's economic analysis is an evaluation of the necessity of regulatory action, addressing such key questions as:

[28] 12 CFR § 220.12. Some investors may instead qualify to use portfolio margin at their brokers. Portfolio margining could allow investors to achieve higher levels of leverage relative to a Regulation T margin account. Portfolio margin requirements are generally set by individual brokers and are governed by FINRA Rule 4210.

[29] The differential leverage may be important for investors with limited wealth available to commit to their trading strategy.

[30] For example, Vanguard indicates on its website that it does not offer trading in futures. See https://investor.vanguard.com/investing/investment/alternative-investments. Similarly, Fidelity does not mention futures as a tradable product on its website. See https://www.fidelity.com/trading/investment-choices/overview.

[31] Current Guidance on Economic Analysis in SEC Rulemakings, March 16, 2012 ("SEC Guidance"), available at https://www.sec.gov/divisions/riskfin/rsfi_guidance_econ_analy_secrulemaking.pdf.

Why is a rule necessary? What evidence indicates there is a market failure or other problem the proposed rule is meant to address? What does the rule seek to accomplish and how would it achieve that objective?

(2) Articulating the appropriate economic baseline against which to measure the proposed rule's likely economic impact

New regulatory actions are not implemented in a vacuum. The economic analysis should display a clear understanding of the current state of the world as a baseline against which to evaluate the proposed rule's benefits and costs and its impact on efficiency, competition, and capital formation. For proposed rules that aspire to address concerns related to investor protection, articulating the economic baseline would include a consideration of other safeguards already in place, and the extent to which the existing regulatory structure already addresses the concern.

(3) Identifying and evaluating reasonable alternatives to the proposed regulatory approach

The economic analysis should also help the SEC identify the best regulatory alternative for addressing the identified market failure or need for regulation. Economic analysis must specify alternative regulatory solutions that could address the concern in the most efficient manner and should explain why the proposed rule achieves the desired regulatory goal better than the alternatives.

(4) Assessing the potential economic impact of the proposed rule and reasonable alternatives

A critical component of any economic analysis is an objective evaluation of the proposed rule's costs and benefits, both quantifiable and unquantifiable.[32] Even if some costs are not quantifiable, they should be identified so that policymakers can make their decisions using the fullest possible information.

30. The economic analysis of the proposed sales practices rules fails to satisfy fully any of these four criteria contained in the SEC's own standards. The economic analysis makes virtually no effort to justify the necessity of the sales practices rules and fails to address whether the existing

[32] The SEC Guidance requires that any proposed rulemaking "(1) identify and describe the most likely economic benefits and costs of the proposed rule and alternatives; (2) quantify those expected benefits and costs to the extent possible; (3) for those elements of benefits and costs that are quantified, identify the source or method of quantification and discuss any uncertainties underlying the estimates; and (4) for those elements that are not quantified, explain why they cannot be quantified." SEC Guidance, pp. 9-10. The SEC Guidance also advocates for combining the analysis of costs and benefits with the economic effects on Efficiency, Competition, and Capital Formation, in order to reduce "redundancy and unnecessary parsing of economic effects." SEC Guidance, p. 14.

regulatory framework is adequate to address investor protection concerns. In the absence of these foundational elements, it is not surprising that the economic analysis also fails to specify the proposed sales practices rules' specific benefits. While the economic analysis recognizes the monetary implementation and compliance costs of brokers and investment advisers, it ignores substantive costs that the proposal is likely to impose on investors and L/I fund sponsors. The economic analysis also considers only a single alternative solution, which seems likely to regulate the L/I fund industry out of existence. In short, the economic analysis in the Proposing Release does not provide a clear rationale for proceeding with the rules. In the following sections, I explain my reasons for reaching this conclusion.

IV. THE ECONOMIC ANALYSIS DOES NOT DEMONSTRATE A PROBLEM REQUIRING NEW SALES PRACTICE RULES

31. The economic analysis does not identify a market failure that justifies regulatory intervention, but rather seems to accept the incorrect idea that holding L/I funds for horizons significantly longer than one day is damaging and signifies misunderstanding. The Proposing Release does not establish that investors do not understand or are displeased with longer-horizon L/I fund returns that deviate from the stated multiple of the underlying index return. Nor does it provide reliable information about the extent to which individual investors hold these products over longer horizons. The failure to demonstrate substantial investor harm tied to misunderstanding of L/I fund investments deprives the SEC of a firm basis for imposing new sales practices rules on these funds.

A. The Economic Analysis Fails to Provide a Justification for the Proposed Sales Practices Rules

32. The economic analysis simply states what the proposed sales practices rules seek to accomplish:[33]

> We believe the proposed sales practices rules would enhance investor protection by helping to ensure that investors in these funds are limited to those who are capable of evaluating their characteristics…and the unique risks they present.

[33] Proposing Release, p. 251.

The economic analysis appeals to a survey of the literature addressing investors' limited financial literacy,[34] and suggests that investors "may not fully understand the risks in their investment decisions and [may] not fully understand the effects of compounding returns over time."[35] Although the economic analysis appears to infer from this study that many investors may be incapable of evaluating L/I fund risks,[36] the cited study has nothing to do with the "unique"[37] risks of L/I funds or investors who may consider purchasing such funds. Remarkably, nowhere in the study, which is used as a justification of the proposed sales practices rules, do the authors mention L/I funds. The SEC specifically acknowledges this in footnote 535 of Proposing Release.[38]

33. The purported lack of investors' financial literacy has broader implications for the SEC to consider. Do all investors fully understand bond yields, dividends rates, or the effect of mutual fund fees, which are essential determinants of value for many investments? Should sales practice provisions be broadened to prevent certain investors from purchasing stocks, bonds, convertible bonds, and mutual funds? If disclosure of investment objectives and principal risks sufficiently informs investors in stocks, bonds, and mutual funds, why is it insufficient for L/I funds? The Proposing Release and economic analysis do not address this central question.

34. Furthermore, the economic analysis fails to explain why it is necessary for investors that have chosen to seek advice from a broker or an investment adviser to be capable of evaluating L/I funds. Such investors have signaled, to some extent, that they either are not sophisticated enough to take control of their investment choices or that, even if they have the sophistication, they may not want to expend the effort and time to do it on their own. The SEC offers no rationale for why such investors need a complete understanding of the risks of L/I funds if they are relying on the advice of a financial professional who understands the product.

---

[34] Proposing Release, p. 288 and note 535 (which suggests, from survey evidence, that investors do not always understand compounding of returns).

[35] Proposing Release, p. 288.

[36] Proposing Release, p. 288.

[37] Proposing Release, p. 288.

[38] Proposing Release, p. 288 and note 535 ("The literature does not address retail investor's inattention to investment risk or the unique dynamics of compounding of daily returns in the context of leverage/inverse ETFs…").

B. The SLCG Paper is Unreliable and Does Not Provide Justification for the Proposed Sales Practices Rules

35. The economic analysis does not offer specific reasons why potential L/I fund investors may need special protections. The Proposing Release claims that "buy-and-hold investors in a leveraged/inverse fund who have an intermediate or long-term time horizon—and who may not evaluate their portfolios frequently—may experience large and unexpected losses or otherwise experience returns that are different from what they anticipated."[39] The Proposing Release further notes that previous commenters have "indicated that at least some segment of investors may hold leveraged/inverse funds for long periods of time, which can lead to significant losses under certain circumstances."[40]

36. The only attempt to support this view can be found in the Proposing Release's "discussion" section, which cites a 2010 paper from the Securities Litigation Consulting Group ("SLCG").[41] By evaluating five L/I ETFs,[42] the authors claim that "leveraged ETFs are a poor way of leveraging or selling short an index for a period longer than a day or two"[43] and purport to show that "many investors hold their leveraged ETFs for very long periods, at times longer than three months."[44] Relying on the SLCG paper to justify the proposed sales practices rules is inappropriate because its conclusions are flawed in two very basic ways.

37. First, setting aside the irrelevance of SLCG's holding period interpretations, their effort to estimate the distribution of investors' holding periods for L/I funds is unreliable. Because data on individual investors' actual holding periods are not publicly available, SLCG applies a

---

[39] Proposing Release, p. 178.

[40] Proposing Release, p. 179.

[41] Guedj, I., G. Li, and C. McCann. "Leveraged ETFs, Holding Periods and Investment Shortfalls", Securities Litigation and Consulting Group (2010) ("SLCG (2010)"), p. 18. The Proposing Release cites to a comment letter from the Consumer Federation of America as support for the statement that "some commenters to the 2015 proposal indicated that at least some segment of investors may hold leveraged/inverse funds for long periods of time, which can lead to significant losses under certain circumstances." (Proposing Release, p. 179, note 314). However, the only support that the comment letter provides for this proposition is a cite to the same SLCG paper. See Comment Letter of the Consumer Federation of America, March 28, 2016, p. 3, note 8.

[42] The SLCG paper does not explain how it chose the five ETFs whose returns are analyzed. The ETFs do not appear to be the largest or most actively traded L/I funds. Absent a specific explanation of how the funds were selected, one wonders whether the selected funds are representative of L/I funds generally, or whether those particular funds were selected to bolster the authors' desired point.

[43] SLCG (2010), p. 10.

[44] SLCG (2010), p. 18.

"Multiple Trader Model" to the daily trading volume of five L/I funds to infer the distribution of L/I share holding periods. However, the inferences the authors derive from the model tell us little about L/I funds and much about the model's underlying assumptions.

38. Specifically, the Multiple Trader Model assumes that there are two groups of investors, one who trades frequently and one who trades infrequently. Each day, each group accounts for a fixed portion of the trading volume. By assuming that all shares held by a particular group are equally likely to trade, the model generates a smooth distribution of implied holding periods. The model's assumptions directly imply that it will identify some "long-term holders," regardless of the true holding periods.[45] And there is no way to test the accuracy of Multiple Trader Models because the required data on individual investors' actual holding periods are not publicly available. It is also worth noting that in a securities litigation context, courts have determined that trading models similar to the one used by SLCG are not reliable.[46]

39. The Multiple Trader Model's assumptions are particularly unlikely to hold for L/I funds. Because some L/I shares are used to implement short-term trading and hedging strategies, trading decisions are likely to be correlated with movements in the index return and its volatility. In other words, short-term investors' trades will tend to be correlated with one another. Such behavior violates the model's most basic assumption. If trading decisions will be correlated across traders in a changing and unknown way, these models cannot generate reliable information about the distribution of investor holding periods.

40. Even without data on actual holding periods, the SEC could have investigated the extent to which the patterns of fund flows in and out of L/I funds have been consistent with short-term traders' incentives. The typical mutual fund exhibits a well-documented positive effect of

[45] To illustrate, suppose this model were applied to an ETF for which 100% of investors hold for exactly four days, giving the fund a daily turnover rate of 25%. The Multiple Trader Model matches this mean holding period (4 days) by assuming that a group of active traders hold 20% of the shares and have a daily turnover rate of 100% (Calculated as (0.8 x 0.25)/0.2) and a group of less active traders hold 80% of the shares but have a daily turnover rate of 6.25% (calculated as (0.2 x 0.25)/0.8). The model also assumes that the turnover is assigned randomly to traders within the group. As a direct consequence of this assumption, the model would incorrectly predict that approximately 10% of shares would be held for longer than two weeks (10 trading days), and approximately 5% of shares would be held for more than one month (21 trading days). In short, the Multiple Trader Model predicts that some investors hold for longer periods even when it is not true.

[46] For example, *In re Broadcom Corp. Securities Litigation* (2005), the US District Court for the Central Division of California rejected a multi-trader model stating that "[t]he technique has not been tested against 'real world' conditions … [and] has not been subjected to the sort of critical peer review publication that one would expect as a prerequisite for jury acceptance." The Court concluded that "the trading model technique is of significantly questionable reliability." See *In re Broadcom Corporation Securities Litigation*, 2005 U.S. Dist. LEXIS 12118, pp. 5-6 (C.D. Cal. 2005). See also *Kaufman v. Motorola*, 2000 WL 1506892 p. 2 (N.D. Ill. Sept. 21, 2000).

performance on subsequent investor flows.[47] When a fund earns good returns, investors buy more of the fund's shares, presumably because they expect the fund's good performance to continue. Direxion's largest L/I funds perform quite differently. I examined the historical relation between Direxion's largest L/I fund returns and the subsequent fund flows and found a negative relationship between fund returns and subsequent changes in outstanding shares. In other words, investors tend to withdraw their funds from L/I funds (as evidenced by a decrease in shares outstanding) following periods of positive performance. This behavior is consistent with some traders using L/I funds for short-term trading strategies: as a fund earns positive returns and rebalances, investors' dollar-denominated exposure to the underlying index increases. Accordingly, they may sell shares to restore their initial (dollar-denominated) exposure. Although this evidence does not rule out the possibility that some investors hold L/I funds for longer holding periods, it does indicate the likely activity of short-term holders, whose trades are likely correlated with one another.[48]

41. The SCLG paper's second basic flaw is that its finding, that "many investors hold their leveraged ETFs for very long periods," does not demonstrate a lack of investor understanding or investor harm, as the paper's authors claim. As explained in Section II above, investors with certain views may find investing in L/I funds over a longer horizon to be a cost-effective means of achieving their objectives.[49] SLCG's assertion, like that of FINRA, is simply incorrect. It reflects a naïve and incomplete understanding of L/I funds' economic value as a means of benefitting from broad market returns. The SEC has no evidence that investors in L/I funds seek an exact target return multiple over a longer period, or that investors have naïve expectations

[47] For example, Sirri and Tufano (1998) find that "[m]utual fund consumers chase returns, flocking to funds with the highest recent returns, though failing to flee from poor performers." See Sirri, Erik R., and Peter Tufano, "Costly search and mutual fund flows," *The Journal of Finance* 53, no. 5 (1998). See also Berk, Jonathan B., and Richard C. Green, "Mutual fund flows and performance in rational markets," *Journal of Political Economy* 112, no. 6 (2004); Huang, Jennifer, Kelsey D. Wei, and Hong Yan, "Participation costs and the sensitivity of fund flows to past performance," *The Journal of Finance* 62, no. 3 (2007).

[48] Given that holding period data are not publicly available, the SEC should have sought alternative data about L/I fund holding periods. The simple regression analysis I undertook demonstrates that the typical L/I fund investor behaves quite differently from investors in other, more typical mutual fund shares.

[49] SLCG makes several dramatic statements that are refuted by my above analysis of realized L/I share returns. Most notably, they claim that "both 200% and 300% leveraged ETFs and inverse ETFs are quite likely to have negative returns across long holding periods whether the underlying market returns are positive or negative." (SLCG (2010), p. 4, emphasis added.) This conclusion is simply wrong. In Section II.B, I demonstrated that over the past approximately 11 years, Direxion's L/I ETF returns generally tracked the buy-and-hold margined return for a variety of holding periods and, in fact, outperformed the buy-and-hold margin strategy when the underlying index return was very large. While L/I funds can earn poor returns in certain market conditions, particularly when extreme volatility is combined with flat returns, this is only one component of the investment's overall risk, which is fully described in the prospectus. (See Section V.A for more detail on L/I fund prospectus disclosures.)

inconsistent with the clear prospectus disclosures. The SLCG holding period analysis is therefore irrelevant with respect to the proposed sales practices rules.

42. To summarize, neither SLCG nor the Proposing Release have presented any evidence (other than anecdotal examples from FINRA enforcement actions) that investors misunderstand the longer-term performance of L/I funds and suffer as a consequence of such misunderstanding. SLCG's analysis employs an overly simplistic model to conclude that some L/I fund investors hold their shares for long periods of time. Even if we accept that conclusion, it says nothing about the potential for investor misunderstanding. I conclude that the SLCG paper provides no reliable information about the existence or importance of misinformed investors in the market for L/I shares.[50]

C. The DERA Note Does Not Demonstrate that L/I Fund Returns Require Special Sales Practices Restrictions

43. In conjunction with the Proposing Release, the SEC also published a study by the SEC's Division of Economic and Risk Analysis ("DERA").[51] This study has a very narrow focus, to investigate the distributional properties of L/I funds over longer holding periods. The DERA Note is not designed to (and does not claim to) evaluate whether investors misunderstand the risks of L/I funds. Nor does it address the question of whether it is inappropriate for investors to hold L/I funds over longer holding periods, whether any investors are using the funds inappropriately, or more generally whether there is any need for additional regulation. In fact, the study notes reasons why investors might find L/I funds useful investment vehicles.

44. The only commentary in the DERA Note that indirectly relates to the need for new sales practices rules is a brief statement in the paper's conclusion: "Just as investors may need a higher level of sophistication to understand the return characteristics of options, they may also need a higher level of sophistication to understand the returns of [L/I funds] over longer holding periods."[52] The actual analysis in the DERA Note concentrates on documenting some (unspecified) level of skewness in some measures of an L/I fund's longer-term holding period

[50] Note that the Proposal's economic analysis does not refer to this paper, perhaps indicating that DERA's assessment was similar to mine.

[51] Division of Economic and Risk Analysis, "Economics Note: The Distribution of Leveraged ETF Returns," November 2019 ("DERA Note"). The Economic Analysis section of the Proposing Release references this study when describing the baseline for L/I funds. See Proposing Release, p. 257, note 469.

[52] DERA Note, p. 8.

returns. However, a mere conjecture that investors may need a higher level of sophistication to understand an investment that has skewness in its returns is not a justification for imposing a new rule. Such an argument could be made for adopting the same requirement for nearly any instrument. Evidence in the academic literature shows that there is skewness in individual stock returns and in stock index returns.[53] Corporate bonds, which have limited upside potential but large downside potential in the event of default, are economically similar to a written position in a put option.[54] The DERA Note does not attempt to assess whether the amount of skewness in L/I funds differs substantially from common stocks, bonds, or other instruments that trade without any explicit approval requirements.

45. The above quote from the DERA Note ("[j]ust as investors may need a higher level of sophistication to understand the return characteristics of options …"[55]) much too cavalierly implies an equivalence between L/I funds and option positions. Even a cursory review of the nature of option markets is enough to show that a fair amount of specific knowledge is required to understand the basic mechanics of how option investing works. An investor who approaches the option market is confronted with a vast array of call or put options with a large range of strike prices and maturities, as well as different specifications regarding settlement procedures and early exercise. Relative to L/I funds, a far deeper knowledge is required to understand how options can be used to achieve various investment objectives, how to determine whether the option is trading at a fair price, how to measure and monitor the risk of option positions, and how to decide when to exercise options early.

46. Certain other investments not covered by the proposed sales practices rules have complex risk profiles that may be equally difficult or more difficult to understand than L/I funds. For example, convertible bonds have an embedded option. If the issuer's share price does not rise sufficiently, a convertible bondholder suffers a loss in the form of a low coupon return on invested funds. This feature may be difficult for unsophisticated investors to anticipate and value. Stocks near bankruptcy tend to have very high implicit leverage, a possibility of total loss, and a highly skewed distribution of returns.[56] Stocks purchased in or immediately after an IPO have a complex risk profile due to the high level of uncertainty in the pricing process, the

[53] See, e.g., Albuquerque, Rui, "Skewness in Stock Returns: Reconciling the Evidence on Firm Versus Aggregate Returns." *The Review of Financial Studies* 25, no. 5 (2012).

[54] See Black, Fischer, and Myron Scholes, "The Pricing of Options and Corporate Liabilities," *The Journal of Political Economy* 81 (1973).

[55] DERA Note, p. 8.

[56] See, e.g., Campbell, John Y., Jens Hilscher, and Jan Szilagyi, "In Search of Distress Risk." *The Journal of Finance* 63, no. 6 (2008).

likelihood of underwriter price support in the immediate aftermarket, and the empirical fact that IPOs on average tend to exhibit long-term underperformance.[57]

47. In trying to distinguish L/I fund investments from others available to investors with similar complexity or return properties, the SEC must confront the question of why disclosure is sufficient to protect investors from choosing inappropriate investments for some instruments, but appears to be insufficient for L/I funds. The SEC has not articulated a mechanism for evaluating how disclosure affects investors; without such a mechanism, it is hard to argue that the net benefits of the proposed sales practices rules are likely to be positive. For example, for how many potential investors would the sales practices rules be unnecessary but costly? For how many potential investors would the sales practices rules prevent an insufficiently sophisticated investor from making an investment mistake? To what extent are investors already protected through regulatory restrictions on recommending brokers or investment advisers? In the absence of extensive survey or other evidence, answering these questions is impossible. The economic analysis should, however, have posed these questions as a means of framing the relevant issues, so Commissioners could come to their own conclusions about the rules' costs and benefits for individual investors.

V. THE ECONOMIC ANALYSIS BASELINE FAILS TO ACCOUNT FOR THE EXISTING REGULATORY REGIME

48. The economic analysis in the Proposing Release provides almost no discussion of the baseline against which the impacts of the proposed sales practices rules should be evaluated. Yet that baseline includes at least two forms of existing protection that should have been explicitly considered in the economic analysis. The economic analysis first fails to discuss why existing L/I fund disclosures are inadequate to protect potential investors. The economic analysis also fails to show that existing regulations do not adequately protect professionally-advised investors from the risk properties of L/I funds.

[57] See Loughran, Tim, and Jay R. Ritter, "The new issues puzzle," *The Journal of Finance* 50, no. 1 (1995). See also, Ritter, Jay R, "The long-run performance of initial public offerings," *The Journal of Finance* 46, no. 1 (1991); Krigman, Laurie, Wayne H. Shaw, and Kent L. Womack, "The Persistence of IPO Mispricing and the Predictive Power of Flipping." *The Journal of Finance* 54, no. 3 (1999).

A. The Economic Analysis' Baseline Did Not Assess Why the Existing Disclosure Regime Is Inadequate to Protect Potential Investors in L/I Funds

49. The SEC has long maintained that disclosure is an appropriate (and, in most cases, a sufficient) regulatory approach for highlighting key information for investors. The SEC has not previously implemented mandatory due diligence to allow self-directed investors to trade or invest in other types of instruments admitted for trading on stock exchanges.[58]

50. The economic analysis should have begun by describing and explaining the existing disclosure rules for L/I funds to provide a basis for understanding the comprehensiveness of the baseline disclosure regime. Most L/I funds are structured as registered investment companies and are subject to all the disclosure requirements of the Investment Company Act. Both statutory and summary prospectuses are made available to investors to inform their investment decisions. L/I funds have been available to investors since 1993, over which time the SEC has reviewed and provided feedback for issuers to refine their disclosures about the risks specific to these funds.

51. Instead, the economic analysis presumes, based on a survey of a literature addressing financial literacy of investors (but not L/I fund investors in particular), that investors "may not fully understand…the effects of compounding returns over time," which "may directly apply in the context of the daily compounding feature" of L/I funds.[59] A review of the summary prospectuses for L/I funds would have shown the SEC that L/I funds clearly and concisely describe the investment objectives, risks, and impacts of volatility on fund performance in a

[58] FINRA rule 2360(b)(16), which covers opening of accounts for options trading, requires broker-dealers to approve customers' accounts for options trading. Prior to approving an account for options trading, the broker-dealer must conduct due diligence and seek to collect the same type of information outlined in the proposed sales practices rules (e.g., investment objectives, estimated annual income, investment experience and knowledge, etc.). However, my understanding is that this rule does not require the broker to have a "reasonable basis to believe" that customers are capable of understanding the risks before approving them to open an account for options trading. While FINRA's rule regarding suitability, FINRA rule 2360(b)(19), requires a broker-dealer to have a "reasonable basis for believing" that the customer "is capable of evaluating the risks of the recommended transaction," this rule does not apply to self-directed investors. See FINRA rule 2360, available at https://www.finra.org/rules-guidance/rulebooks/finra-rules/2360. Note that FINRA rule 2360 only applies to options, which trade on option exchanges, and not to other instruments that trade on stock exchanges.

[59] Proposing Release, p. 288 and note 535.

straightforward manner for potential investors. For example, a summary prospectus for Direxion Daily S&P 500 Bull 3X Shares clearly states:[60]

- "The Fund does not seek to achieve its stated investment objective for a period of time different than a trading day."[61]

- "[T]he Fund presents risks not traditionally associated with most mutual funds and ETFs."[62]

- "The Fund has a daily leveraged investment objective and the Fund's performance for periods greater than a trading day will be the result of each day's returns compounded over the period, *which is very likely to differ from 300% of the Index's performance*..."[63]

- "Compounding … has a more significant impact on funds that are leveraged and that rebalance daily. Particularly during periods of higher Index volatility, compounding will cause results for periods longer than a trading day to vary from 300% of the performance of the Index… *[C]ompounding will impact each shareholder differently depending on the period of time an investment in the Fund is held and the volatility of the Index during shareholder's holding period*..."[64]

52. My review of Direxion's summary prospectuses clearly indicates that potential investors in Direxion's L/I funds have a wealth of information available to them regarding the specific concerns highlighted by the SEC's economic analysis.

---

[60] For completeness, I examined the summary prospectuses for a variety of Direxion's daily L/I funds, dated February 28, 2020. These summary prospectuses include similar descriptions of the funds' investment risks, including compounding and market volatility risk, leverage risk, market risk, and liquidity risk.

[61] Direxion Daily S&P 500 Bull 3X Shares Summary Prospectus, p. 2. In the investment strategy section of the summary prospectus, Direxion discloses that "[b]ecause of daily rebalancing and the compounding of each day's return over time, the return of the Fund for periods longer than a single day will be the result of each day's returns compounded over the period, which will very likely differ from 300% of the return of the Index over the same period. The Fund will lose money if the Index performance is flat over time, and as a result of daily rebalancing, the Index's volatility and the effects of compounding, it is even possible that the Fund will lose money over time while the Index's performance increases over a period longer than a single day."

[62] Direxion Daily S&P 500 Bull 3X Shares Summary Prospectus, p. 3.

[63] Direxion Daily S&P 500 Bull 3X Shares Summary Prospectus, p. 3, emphasis added.

[64] Direxion Daily S&P 500 Bull 3X Shares Summary Prospectus, p. 3, emphasis added. The Direxion Daily S&P 500 Bull 3X Shares summary prospectus provides a chart reporting fund returns for different index volatilities over a year in which the index has a flat return of 0%. This chart is included as Exhibit 1.

53. Further, the SEC has not assessed the degree to which the potential problem of investor confusion is already being mitigated through investor education. Numerous resources are available to investors beyond the mandated disclosures to help them understand these products. For example, Direxion's website includes an "Education" section that offers, among other resources, a brochure that explains the daily rebalancing process and the risks of investing in L/I ETFs[65] and a video series on understanding L/I funds, including what can happen when markets are flat but volatile.[66] In addition, the SEC and FINRA have issued investor alerts to further educate investors about the risks of specific products such as L/I funds.[67]

B. The Economic Analysis Does Not Fully Account for Existing Protections of Professionally-Advised Investors

54. Many investors rely on knowledgeable financial professionals for advice or recommendations about how to meet their investment objectives. As the economic analysis acknowledges, these advisers are governed by comprehensive rules designed to protect investors from inappropriate advice.[68] These rules include:

- the fiduciary standards in the Investment Advisers Act or FINRA suitability rules.

- the SEC's recently-adopted Regulation Best Interest ("Regulation BI"), which is designed to strengthen investor protections by requiring broker-dealers to act in the best interest of their customers when making recommendations.[69]

---

[65] Direxion, "Understanding Leveraged Exchange Traded Funds," An Exploration of the Risks & Benefits, available at http://www.direxion.com/wp-content/uploads/2012/09/Understanding_Exchange_Traded_Funds.pdf

[66] Direxion, "Understanding Leveraged & Inverse ETFs Video Series," available at http://www.direxion.com/jackjill.

[67] See, e.g., FINRA, "Non-Traditional ETFs FAQ," available at https://www.finra.org/rules-guidance/key-topics/etf/non-traditional-etf-faq; SEC Investor Alert and Bulletin, "Leveraged and Inverse ETFs: Specialized Products with Extra Risks for Buy-and-Hold Investors," available at https://www.sec.gov/investor/pubs/leveragedetfs-alert.htm.

[68] Proposing Release, p. 259 ("To the extent that broker-dealers or investment advisers recommend leveraged/inverse investment vehicles to their customers or clients, they should have processes in place to satisfy their obligations to make only suitable recommendations or provide best interest advice, respectively.")

[69] Investment Advisers Act of 1940 [15 U.S.C. Section 201 80b-1 to Section 224 80b-18c] ("Advisers Act"); FINRA Rule 2111, available at https://www.finra.org/rules-guidance/key-topics/suitability; "Regulation Best Interest: The Broker-Dealer Standard of Conduct," Release No. 34-86031, June 5, 2019 ("Regulation BI").

Even if professionally-advised investors do not fully understand the risks of L/I investing, their advisers should reliably evaluate whether those risks fit into an investor's portfolio objectives. In other words, an investor's complete understanding of L/I funds' risks may be unnecessary as long as the financial professional understands the product.

55. The existing investor protections could limit or eliminate the purported benefits of the proposed sales practices rules. The economic analysis mentions that these protections may reduce the benefits of the proposed sales practices rules,[70] but does not explain the extent to which the proposed rules may be completely redundant. For example, the SEC failed to estimate what proportion of individual investors investing in L/I funds are largely guided by a professional adviser.

56. The economic analysis also inadequately recognizes that investors differ in use of professional advice, and therefore benefit from different regulatory regimes with different protections in place. It may be that the proposed rules have no benefits for some categories of investors, even if there may be benefits for others. A careful economic analysis would separately evaluate at least three distinct groups of investors: self-directed brokerage customers, brokerage customers seeking recommendations, and advisory clients seeking advice. Understanding which categories of investors might need further protection would help inform the SEC as to which alternative proposals should be considered.

57. Further, in addition to the investor protection rules described above and acknowledged in the economic analysis, there are enforcement mechanisms in place to ensure that brokers and investment advisers comply with these rules and provide appropriate recommendations and investment advice. The economic analysis fails to assess the adequacy of (or even mention) these enforcement mechanisms in its assessment of the baseline. Yet, FINRA and the SEC actively use these enforcement mechanisms when needed, as evidenced by the FINRA and SEC actions cited in footnotes 315 and 316 of the Proposing Release,[71] as well as a recent enforcement action against Wells Fargo.[72] Moreover, the cited enforcement actions do not focus on investors' sophistication or understanding of L/I funds but rather identify instances in which financial advisers failed to comply with certain rules related to suitability. It is not clear that

[70] Proposing Release, p. 288.

[71] Proposing Release, pp. 179-180 and notes 315 and 316.

[72] In the Matter of Wells Fargo Clearing Services, LLC, and Wells Fargo Advisors Financial Network, LLC, Order Instituting Administrative and Cease-and-Desist Proceedings, Pursuant to Section 15(B)(4) of the Securities Exchange Act of 1934 And Sections 203(E) and 203(K) of The Investment Advisers Act of 1940, Making Findings, and Imposing Remedial Sanctions and a Cease-and-Desist Order, February 27, 2020.

putting in place additional sales practices rules would effectively address potential problems with brokers' or investment advisers' internal controls and compliance issues.

58. In sum, the economic analysis in the Proposing Release does not adequately consider the existing regulatory regime that already protects investors. The SEC's failure to account for existing disclosures and regulations regarding investment advice and recommendations may lead to a costly sales practices provision with no readily apparent benefits for a large proportion of the affected investors. To the extent that the existing framework is already working well, it is not clear why the proposed rules would generate additional benefits for those who are investing in L/I funds pursuant to advice from a regulated broker-dealer or investment adviser. If the only benefits of the sales practices rules come from protecting self-directed investors, the rules' total benefits are correspondingly curtailed.

VI. THE ECONOMIC ANALYSIS OF THE BENEFITS AND COSTS OF THE PROPOSED SALES PRACTICES RULES IS INCOMPLETE

59. The economic analysis articulated significant implementation costs to brokers and investment advisers associated with the proposed sales practices rules (more than $2 billion in the first year). Below, I describe how the analysis fails to provide support that the rules would generate significant benefits relative to the estimated costs. In the absence of any clear benefits, the substantial costs alone suggest that the rules should not be adopted as proposed. Moreover, the SEC fails to consider some costs that may arise as a result of how firms may react to the rule. As a consequence of the magnitude of the costs (which could be even higher, to the extent the ambiguous nature of the requirements leads some firms to decide that they need a more rigorous screening process for investors considering L/I funds in their portfolios), some firms might choose to stop offering L/I funds. This decision would force investors who fully understand the risks and are using the products in appropriate ways to use costlier and/or less efficient strategies to achieve their objectives. The economic analysis ignores the costs associated with a loss of investor choice that would result from such an outcome.

A. The Economic Analysis Fails to Demonstrate Benefits of the Proposed Sales Practices Rules

60. As explained in Section IV.A, the economic analysis only briefly describes a single expected benefit of the proposed sales practices rules: "The proposed rules also are designed to help to ensure that investors in these [L/I] funds are limited to those who are capable of evaluating the

characteristics… and the unique risks they present."[73] While it is possible that some investors may benefit to the extent that a mandatory approval process shines a brighter light on the risks of L/I funds, the SEC has not performed any analysis to determine if this outcome would be likely. Indeed, as I explained in Section II, this purported investor protection benefit is speculative at best because the SEC has not shown that there are investors who do not understand L/I funds.

61. The economic analysis also fails to estimate how many investors may benefit from the proposed sales practices rules.[74] The SEC should have at least considered the possibility that the proposed rules would provide minimal, if any, incremental protection to investors given the existing regulations, as discussed above in Section V. The SEC did acknowledge that "these benefits may be reduced, to the extent that they overlap with the effects of investment advisers' or broker-dealers' existing requirements or practices related to a retail investors' suitability for investment in these products," but failed to elaborate further on the extent to which the benefits would be reduced.[75] The SEC's own economic analysis seems to imply that no benefits accrue to investors who are currently protected through regulatory restrictions on their brokers or advisers. Therefore, when consideration is given to the existing baseline, the benefits of the proposed sales practices rules for many investors appear to be limited, and possibly non-existent.

B. The Quantified Adoption Costs Are Substantial and Could Threaten Sophisticated Investors' Access to L/I Funds

62. The SEC estimates that one-time costs to broker-dealers, investment advisers, and L/I investors associated with the proposed sales practices rules would total $2.34 billion in the first year.[76] The SEC further estimated that broker-dealers and investment advisers would collectively incur ongoing costs (related to collecting information on and evaluating new

[73] Proposing Release, pp. 287-288.

[74] I recognize the difficulty in estimating the dollar value of benefits of proposals; however, the SEC should have tried to provide some discussion of the economic value of those benefits, especially considering the cost of the proposal.

[75] Proposing Release, p. 288.

[76] Proposing Release, p. 292, note 550. The requirements of the proposed sales practice rules would consist of: (1) developing and implementing an online client questionnaire, (2) conducting due diligence on existing customers and evaluating information collected for account approval/disapproval, and (3) establishing and implementing policies and procedures. Proposing Release, pp. 289-290 and notes 538 and 539.

customers, updating policies and procedures, and recordkeeping) of approximately $41 million per year, resulting in a total industry cost for the first year of $2.38 billion. [77]

63. However, the quantified implementation costs may be underestimated as a result of how brokers and investment advisers implement the rule. The proposed sales practice rules would require that brokers or investment advisers have a "reasonable basis for believing" that the investor is capable of understanding the risks.[78] But the rules do not provide guidance as to what the SEC would consider to be a "reasonable basis" or what depth of understanding investors are expected to have. The benefit-cost analysis estimates compliance costs by assuming that brokers and investment advisors could comply with the rule by implementing an "online questionnaire."[79] To the best of my knowledge, however, the SEC's proposal would impose requirements on broker-dealers that exceed anything currently required for orders placed by self-directed investors.[80] In light of this ambiguity regarding what constitutes a "reasonable basis," some firms might take the view that full compliance requires them to conduct a deeper assessment than would be possible through an account application or an "online questionnaire" to assess the investor's specific level of knowledge about these products. This could easily raise the compliance costs above those estimated in the economic analysis.

64. Even taking the estimated costs at face value, the total industry start-up and first-year costs of the proposed sales practices rules are approximately 6% of all L/I fund assets under management.[81] Investment advisers, brokers, and their customers would be required to bear these costs. These high costs and the ambiguity surrounding the requirements and responsibilities of broker-dealers and investment advisers might lead some firms to stop offering these products, especially when brokers charge zero commission. Although this would reduce the cost of implementation for brokers and investment advisers, it would simultaneously impose losses on investors who fully understand the risks, as described below.

---

[77] Proposing Release, p. 292, note 550.

[78] Proposing Release, pp. 416-417, 443.

[79] Proposing Release, pp. 289-290 and note 538.

[80] While similar language is used in FINRA's option suitability rule, that rule relates to recommendations, and thus applies in situations where the broker presumably knows the customer well enough to make recommendations, not to self-directed investors.

[81] Calculated as total costs of $2,377,503,800 divided by net assets of $40 billion as of September 2019. See Proposing Release, p. 257 and note 468. As a basis for comparison, the initial start-up and first-year costs for Regulation Best Interest were estimated to be approximately $8.33 billion (= $5.96 billion + $2.37 billion), 0.19% of the total broker-dealer balance sheet assets of $4.3 trillion. See Regulation BI, pp. 401-402, 620.

65. First, customers of those firms who would otherwise have qualified to invest in L/I funds under the proposed sales practices rules would no longer be able to do so and thus would lose access to a valuable investment vehicle (or bear costs of switching to another broker or adviser), and remaining investors may face higher transaction costs if L/I fund trading liquidity falls. And even if firms continue to offer L/I funds, they may improperly restrict some sophisticated investors from transacting in these products. Both outcomes are inconsistent with the SEC's expressed desire to preserve investor choice.

66. Further, if many firms stop offering L/I funds, the reduced demand for these products might reduce funds' assets under management to such a point that it is no longer economical for sponsors to continue offering them, removing availability of L/I funds even for institutional traders. In either scenario, displaced investors would seek alternative products or strategies, which may be costlier or riskier to replicate in the absence of L/I funds, inhibiting the investors' ability to continue pursuing their previous portfolio strategy.[82]

67. An obvious example of an alternative instrument investors might switch to is daily rebalanced L/I exchange-traded notes ("ETNs"). Such ETNs are subject to exactly the same rebalancing issues as the L/I funds, but are packaged as unsecured debt issued by investment banks. A migration of investors from L/I funds to L/I ETNs does nothing to mitigate the SEC's primary concerns about investor confusion and misunderstanding of L/I products. In fact, L/I ETNs involve additional (costly) risks, such as issuer default risk, that the economic analysis failed to identify. Alternatively, investors excluded from using L/I funds might choose to take on leveraged exposure through traditional margin accounts, or to trade futures, alternatives that involve other complexities and risks. Given the numerous alternatives available to investors that would not be covered by a similar sales practices requirement, it is not at all clear that the proposed rules would provide meaningful new protections for investors. The economic analysis fails to account for these possibilities or discuss the costs associated with loss of investor choice.

68. Finally, to the extent the proposed sales practice rules would not result in the elimination of L/I funds, the SEC fails to recognize that the rules would curtail the extent to which investors can rely on their investment advisers. Consider the case of an unsophisticated investor whose adviser exercises discretionary control over her accounts. Such a client would be denied any benefit from using L/I funds under the proposed sales practice rules because her adviser could

[82] Similarly, to the extent these costs are passed along to L/I fund investors, they may shift to other investment strategies.

not recommend L/I funds without having a reasonable basis for believing the client understands their unique risks. She would therefore be deprived of the full range of her adviser's expertise.

VII. THE SEC FAILED TO CONSIDER REASONABLE ALTERNATIVES TO THE PROPOSED SALES PRACTICES RULES

69. The economic analysis' single suggested alternative to the proposed sales practices rules would eliminate the sales practice requirements while limiting L/I funds' VaR to 150% of the fund's reference index.[83] In other words, the only alternative policy would eliminate, or severely limit, investors' access to L/I funds. Neither the Proposing Release nor the economic analysis seeks to reconcile this implication with the SEC's stated desire to preserve access to L/I funds for selected investors.[84] The "reasonable alternative" proposal thus seems unreasonable (at worst) or incomplete (at best). But there are other reasonable alternatives that might have been considered.

70. For example, the SEC could require that all L/I fund names emphasize the single trading-day nature of the fund's specific investment goals—e.g., by including "daily" or "short-term" as part of the fund name—complementing existing L/I fund risk disclosures.[85] This could provide meaningful information to all potential L/I fund investors by attracting attention to some of the funds' unique characteristics and discouraging any inference that the funds will provide a certain return over longer holding periods.[86] L/I fund sponsors would bear costs associated with renaming their products, related to new marketing material, and other compliance issues. Compared to the proposed sales practices rules, however, appropriately naming L/I funds would be a relatively inexpensive way to provide investors with additional information about their risks.

71. Alternatively, the SEC could recognize the significant layers of protection already in place for brokerage customers and advisory clients, and apply new requirements only to self-directed

---

[83] Proposing Release, p. 324.

[84] Proposing Release, pp. 324-325.

[85] Some L/I fund sponsors already use such a naming convention. For example, Direxion already includes "Daily" as the second word (following "Direxion") in the names of all of its daily L/I funds.

[86] A naming convention is not without precedent for the SEC. For example, as part of Regulation BI, the SEC prohibited the use of "advisor" or "advisers" by broker-dealers or associated persons in order to reduce confusion by investors over the use of titles. Regulation BI, pp. 155-159. Indeed, the SEC has long required that mutual fund names accurately describe the fund's investment objectives. The SEC recently issued a request for comment regarding mutual fund name restrictions and asserted that "[f]und names are often the first piece of information investors see and they can have a significant impact on an investment decision." See "SEC Requests Comment on Fund Names Rule; Seeks to Eliminate Misleading Fund Names," March 2, 2020, available at https://www.sec.gov/news/press-release/2020-50?mod=article_inline.

investors who consider purchasing an L/I fund without professional advice. For example, the SEC could require brokers to include a warning about L/I funds' unique properties and require the investor to affirm her ability to evaluate such risks, including the effects of rebalancing, market volatility risk, and compounding, before executing a transaction. The affirmation could occur when the investor opens a brokerage account or when she first submits an order to purchase an L/I fund (i.e., the point of sale).[87] I understand that at least six major brokers already use point-of-sale disclosures, some of which require investor affirmation.[88]

72. Although point-of-sale disclosures with investor affirmations would require implementation costs (e.g., system refinements[89]), such costs would likely be lower than those associated with the proposed sales practices rules because brokers and investment advisers would not have to evaluate whether a reasonable basis exists to approve each customer to transact in L/I funds.[90] The SEC also could specify the language to be used, further reducing implementation costs. Relative to the baseline, self-directed investors would bear the costs of having to affirm that they understand L/I funds and their risks, which may require a burden to become knowledgeable about these products, but they may benefit from having to recognize the requisite characteristics and risks of L/I funds and determine whether they have the capability to effectively transact in L/I funds. Thus, this alternative would have the same spirit and intent as the proposed sales practices rules, at a lower cost and with fewer, if any, unintended negative consequences.

73. Still another alternative means of protecting potential L/I fund investors would be to implement powers already available to the SEC, which currently approves the risk disclosures in all mutual fund prospectuses. Rather than imposing new sales practices rules, the SEC could devote a special effort to assuring that L/I fund disclosures address the type of situations required to protect potential investors from mistakenly purchasing L/I fund shares.

---

[87] For investors entering orders through an online interface, this affirmation could be implemented through a dialog box, while verbal affirmations could be obtained for investors submitting telephone orders.

[88] The following broker-dealers' trading systems already have point-of-sale order placement pop-ups providing an overview of L/I funds' unique risks: e*Trade, Fidelity, Interactive Brokers, Merrill Edge, Charles Schwab, and TD Ameritrade. For example, Exhibit 2 shows Charles Schwab's pop-up box for the "Leveraged & Inverse Exchange-Traded Products Annual Agreement", which the customer has to "sign" once each year. The Schwab Agreement specifically requires the customer to acknowledge that they "understand and accept the unique risks associated with investing in leveraged and inverse [funds]; [that they] are sophisticated and experienced investor[s]; [that their] risk tolerance is high and [they] can afford to lose some or all of [their] investment…" Charles Schwab (2019), "Leveraged & Inverse Exchange-Traded Products Annual Agreement."

[89] For example, system refinements to implement point-of-sale disclosures likely would constitute a fixed cost, saving the broker or adviser from the expense of making many individual decisions about appropriateness.

[90] For broker that have already implemented investor affirmations for L/I funds, additional costs may be nominal.

VIII. CONCLUSIONS

74. In summary, the economic analysis in the Proposing Release does not support adopting the proposed sales practices rules. It provides no rigorous assessment of whether further regulation is necessary, but rather relies only on FINRA's flawed guidance and other unreliable sources as a basis for assuming that the products are inherently unsuitable for individual investors and are systematically misused. My analysis of historical realized returns on L/I funds demonstrates that L/I funds can provide a cost-effective means of obtaining broad exposure to general market movements over longer holding periods.

75. The economic analysis also fails to consider the implications of extensive investor protections already in place in the form of required and voluntary disclosures, extensive investor education efforts, suitability rules, and fiduciary obligations. The economic analysis provides no evidence that the proposed rules would provide any meaningful enhanced investor protections or any other incremental benefits. The economic analysis estimates implementation costs that are so high that the rules may effectively regulate L/I funds out of existence, and fails to recognize the costs and unintended consequences of such an outcome. Finally, it fails to consider alternative regulatory solutions that might address the SEC's concerns at a substantially lower cost.

APPENDIX A: A STYLIZED EXAMPLE OF THE EFFECTS OF COMPOUNDING AND REBALANCING ON THE HOLDING PERIOD RETURNS OF L/I FUNDS

Below I present a more detailed explanation of why a buy-and-hold leveraged index position and a daily-rebalanced 2X portfolio provide different returns over a multi-day holding period. To illustrate this, I compare (1) an investor who buys on margin to obtain 2X exposure to the underlying index and does not rebalance to (2) an investor who buys on margin to obtain 2X exposure to the underlying index and rebalances daily, as a leveraged fund would. In reality, L/I funds use total return swaps, futures, and/or options to gain exposure to the index. My example, however, assumes that these two investors obtain index exposure by purchasing an ETF that replicates the underlying index returns one-for-one. This example shows that the multi-day deviation between a buy-and-hold portfolio and a daily rebalanced portfolio has nothing to do with the use of derivatives, but rather reflects the mathematics of compounding associated with the daily rebalancing.

Under the buy-and-hold strategy, an investor could attain a leveraged long-run return by investing $100 of her funds, borrowing another $100, and using the proceeds to purchase a $200 claim on the index.[91] Figure A.1 represents the resulting portfolio at inception:[92]

FIGURE A.1

End of Day 0

	A	L+NW	
Index	$ 200.00	$ 100.00	Debt
		$ 100.00	Investment Value

where "Investment Value" is the investor's wealth, analogous to her investment in an L/I fund.

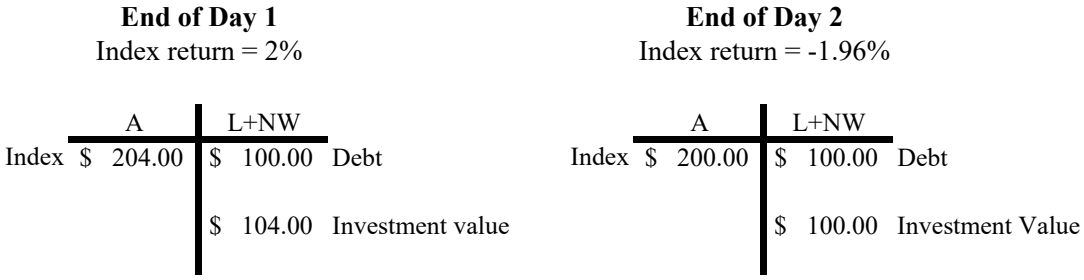
Over time, the investor's wealth moves at twice the rate of the index. Consider a two-day period over which the index has a zero cumulative return. Specifically, assume the index returns 2% on

[91] My examples ignore interest costs, transaction costs, and taxes in order to illustrate the differences between a single-day index multiple return and a multi-day return.

[92] In Figures A.1 through A.4, "A" represents "Assets" and "L+NW" represents "Liabilities and Net Worth."

the first day and then loses 1.96% on the second day.[93] Then the buy-and-hold portfolio's value will evolve as shown in Figure A.2:

FIGURE A.2



- The 2% index return on Day 1[94] raises the portfolio's asset value from $200 to $204 without changing the amount of debt. The investor's wealth (i.e. the investment value) gains exactly twice the index return: 4% (an increase from $100 to $104) vs. 2% (an increase from $200 to $204).

- Day 1's return, however, changes the buy-and-hold investor's sensitivity to the index return on Day 2. Due to the index increase on Day 1, the portfolio's assets declined relative to the investor's invested balance. That is, her leverage fell, making her less exposed to Day 2 index returns. In particular, on Day 2 the investment value will move by only 196% (= $204/$104) of the index change, not 200%.

- On Day 2, the index loses just enough (-1.96%) to return the portfolio's asset value to $200.00, and the investor's investment balance to $100.

- Because the portfolio's index exposure is only 196% at the End of Day 1, on Day 2 the investor loses -3.85% (= ($100/$104) – 1), less than twice the index loss.

---

[93] This is identical to "Scenario 3" presented in Figure 1 in Section II.A of this paper. The return of -1.96% on Day 2 restores the index value to its starting value. This return is smaller in magnitude than Day 1's gain because the Day 2 loss accrues to a higher index value.

[94] Some of the examples shown in FINRA's 2009 Guidance use quite large daily price movements to make their point. As a result, though, the examples generate unrealistically high deviations between their buy-and-hold portfolio and the return on an L/I share. For example, the DERA Note makes a forward-looking assumption that the S&P 500 index will have a "volatility" of 15% per year or 0.94% (=15% /√252) per day and an average annual return of 6%, or 2.381 basis points per day. The daily returns in my example here exceed the daily mean return (2.381 basis points) by more than two standard deviations, and should hence occur less than 5% of the time. Even given these extreme assumed daily returns, the deviation between the buy-and-hold portfolio return the rebalanced portfolio return is quite small.

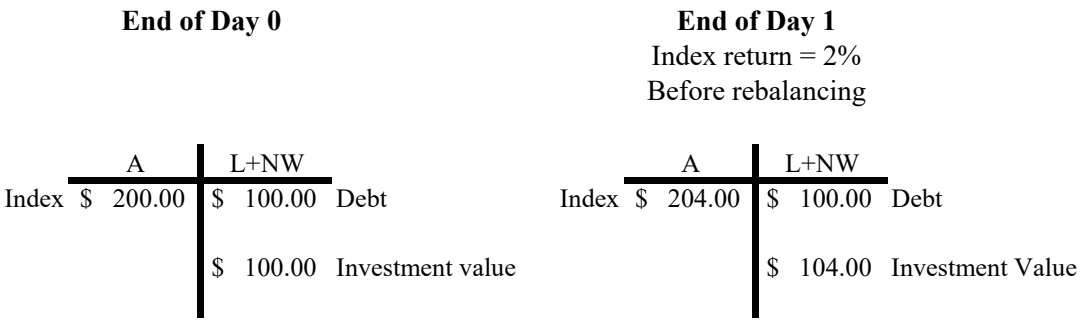
- Since the end of Day 0, however, the investor's realized return of 0% (= ($100/$100) – 1) exactly equals twice the index return of 0% (= ($200/$200) – 1).

This example illustrates that a 2X leveraged buy-and-hold portfolio yields exactly twice the return on an index, *regardless of the holding period*. The example generalizes to any pattern of index returns and to any holding period. At the end of any trading day, however, the investor's sensitivity to subsequent index returns will vary. In other words, pursuing a multi-day 2X buy-and-hold strategy is inconsistent with returning twice the index value each and every day.

How does a daily rebalancing investor's position differ from the above example? Consider the same portfolio as shown above in Figure A.1 for the End of Day 0 and examine the portfolio's value in response to the same path of index returns (+2%, -1.96%). The calculations are more complicated than those shown in Figure A.2: whenever the index return differs from zero, the investor must rebalance her portfolio to meet her daily (next day's) stated multiple objective. For simplicity, I assume that the rebalancing investor purchases an unlevered index fund using various amounts of debt to maintain a constant relation between the asset value and the investment value.

Between the End of Day 0 and the End of Day 1 (before rebalancing), Figure A.3 indicates that the asset value changes in the same way as I showed above for the buy-and-hold, 2X portfolio.

FIGURE A.3



- Because the index earns 2% on Day 1, the investor earns exactly 4% (= ($104/$100) – 1).

- Going forward, however, the rebalancing investor's sensitivity to subsequent index returns has fallen below 2X: for every 1% change in the index value, the investment value will change by only 1.96% (= 1% x ($204/$104)).

- To restore 2X sensitivity for the next trading day, the rebalancing investor must increase her asset exposure to equal twice the investment value. As shown in Figure A.4, at the End of Day 1 the investor rebalances by issuing additional debt to purchase another $4 of index assets. The investor's rebalanced balance sheet has therefore become:

FIGURE A.4

End of Day 1

After rebalancing

	A	L+NW	
Index	$ 208.00	$ 100.00	Old Debt
		$ 4.00	New Debt
		$ 104.00	Investment value

End of Day 2

Index return = -1.96%

Before rebalancing

	A	L+NW	
Index	$ 203.92	$ 104.00	Old Debt
			New Debt
		$ 99.92	Investment Value

- The investor begins Day 2 with the balance shown in the left half of Figure A.4. During Day 2, the index falls by 1.96% so the portfolio's asset value declines by 1.96% of $208, or $4.08, leaving her balance sheet as shown on the right half of Figure A.4. The new debt issued at the End of Day 1 is now included in the "Old debt" category.

- The rebalancing investor has lost $0.08 ($100 – $99.92) over two days despite the fact that the index' net return is zero.[95]

The rebalancing investor's return in Figure A.4 deviated from that of the buy-and-hold portfolio in Figure A.2 because the investors held differing amounts of the index asset over the two-day period. Given this particular pattern of index returns (+2%, -1.96%), the average amount invested in the index differs between the rebalancing investor (($200 + $208)/2 = $204) and the buy-and hold investor (($200 + $204)/2 = $202). The rebalancing investor was more exposed to the index at the End of Day 1, so the negative index return on Day 2 hit her harder than it hit the buy-and-hold investor.

The buy-and-hold return will generally differ from a rebalanced portfolio's return over the same period. However, it is impossible to predict the sign of this difference, which depends on the trend and volatility of index returns. Because future index movements cannot be forecasted, neither can the realized multi-day return of L/I funds. Smooth upward or downward index movements tend to raise the fund return above the stated multiple of the index return; more

[95] Note that this negative return is not a rounding error, but rather a consequence of the rebalancing.

volatile returns with no clear trend tend to depress the L/I fund's return. For example, had the return on Day 2 been +1.96% instead of -1.96%, the two-day return to the buy-and-hold investor would have been 8.0%, while the two-day return to the rebalancing investor would have been 8.08%.[96]

[96] As explained above, the positive index return on Day 1 decreased the exposure of the buy-and-hold investor to the index return on Day 2—for every 1% change in the index value on Day 2, the investment value changes by only 1.96%. Therefore, the Day 2 return is 3.85% (= 1.96 x 1.96%), less than twice the index return (2 x 1.96% = 3.92%). The resulting two-day holding period return is 8.0%, exactly twice the two-day index return of 4.0%. In contrast, the rebalancing investor maintains a 2X exposure to the index returns on Day 2, resulting in a Day 2 return of 3.92%, exactly twice the Day 2 index return. The resulting two-day holding period return is 8.08%, greater than two times the index holding period return of 4.0%.

APPENDIX B: HOLDING PERIOD RETURN CALCULATION METHODOLOGY

Figures 2 and 3 in the text present the multi-day holding period returns for two Direxion L/I funds. I collected the entire daily history of the closing share prices and shareholder distributions for ten Direxion daily L/I funds from their inception through March 17, 2020. The funds were chosen because they represent the largest assets under management among Direxion funds over the five years preceding March 17, 2020. For each trading day, I computed the fund's m-day holding period return as:

$$\text{return} = [(P_t + D_t)/P_{t-m}] - 1 \qquad \text{(B-1)}$$

where P_t is the fund's closing share price on trading day *t*. Share prices were split-adjusted where necessary.

D_t is the sum of all cash distributions to shareholders (e.g., dividends or capital gains) for which the record date lay between the end of day *t-m* and the end of day *t*.

m is the number of days between an assumed purchase and an assumed sale of the fund shares (i.e., the length of the holding period).

The underlying index values for each fund were also collected for each trading day and the index returns computed as in (B-1).[97] For each trading day over the entire history of each fund, I had

1. The fund's daily return, calculated from (B-1)
2. The underlying index daily return, calculated from (B-1)
3. The fund's stated multiple: -3 or 3 times the underlying index' return.

Because I am interested in historical, multi-day L/I fund returns, I computed the holding period return for each fund and its underlying index over intervals of 5, 21, and 126 trading days. The intervals were computed on a rolling basis, such that the first period's 5-day return, for example, was measured using the 6th and the 1st days' closing prices; the second period used the 7th and the 2nd days' prices; etc. These returns are serially correlated because their time periods overlap. The multi-day holding period returns' standard errors are therefore too small, but the computed mean and median estimates are unbiased.

[97] Because all underlying indices are total return indices, no additional adjustment for dividends is necessary.

Again using the 5-day period as an example, each observation measures the realized return from buying an L/I fund's shares on a day and selling the same shares five days later. As I explain in Section II, there is no particular reason to believe that investors hold these L/I fund shares predominantly for 5 or 21 or 126 days. The results I present simply measure the actual return that an investor who happened to have that holding pattern would have earned.

This methodology – examining historical returns – resembles two types of computations employed by DERA in their November 2019 study.

1. Assume log normality and compute expected returns analytically.
2. Construct a simulated time series of L/I fund returns by (e.g.) tripling index returns that are randomly drawn from the set of realized past daily index returns.

The first method is subject to uncertainties about the true distribution of index returns, which DERA admits places some limits on the generality of its conclusions. The second method has the advantage of using actual index realizations (by constructing many alternative simulated return series, DERA can get good estimates of predicted realized returns) but it does not account for any slippage between the index return and the L/I shares' realized return. Moreover, DERA's second method assumes that returns are serially uncorrelated and have a constant volatility. In fact, serially correlated returns and GARCH-type volatility changes are quite common in security returns. My method recognizes the effects of time-varying heteroskedasticity and time-varying serial correlation in returns.

None of these statistical methods is perfect, but I believe my method provides reliable information about the likely characteristics of multi-day holding period returns to L/I fund shares.

APPENDIX C: ADDITIONAL INFORMATION ABOUT L/I FUNDS' MULTI-DAY HOLDING PERIOD RETURNS

This appendix presents "scatter plots" like those in Figures 2 and 3 of Section II.B for ten of Direxion's daily L/I funds with the largest average assets under management over the five years preceding March 17, 2020. These plots describe the complete set of realized returns for overlapping holdings periods of 5, 21, or 126 trading days. Below, I also provide a table of summary statistics for all ten L/I funds for each holding period interval considered.

The main inferences I have drawn from these plots include:

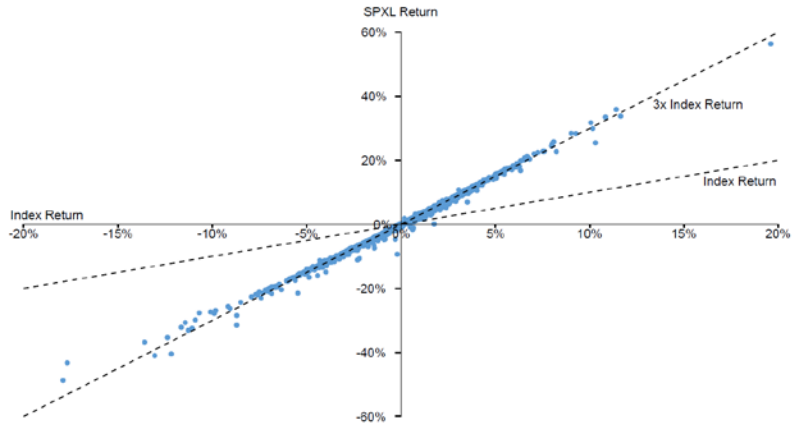
- The L/I funds remain very highly correlated with their underlying indices over periods much longer than a single day.[98] In many cases, holding L/I funds for long periods of time can effectively hedge index movements for at least six months.
- The (incorrectly) predicted deterioration of L/I fund performance with longer holding periods is not at all apparent for all funds or even over all holding periods.
- Unsurprisingly, the multi-day return deviates more from the fund's daily multiple over longer holding periods and when the underlying index return is more volatile.
- Negative L/I fund returns when the underlying index return is positive (or negative, for inverse funds) are not common, and in most cases the negative fund return is relatively small.[99] (See also the tables of summary statistics, below.)

All together, these figures show that investors with appropriate risk preferences can reasonably choose to hold L/I funds for more than a single day in an effort to capture gains from a particular directional movement in an underlying index.

[98] As can be seen in Column [1] of the summary statistic tables, the absolute value of the correlation between fund returns and index returns is higher than 98% for the 5-day holding period returns, higher than 96% for the 21-day holding period returns, and higher than 90% for the 126-day holding period returns. Moreover, columns 2 and 3 show the mean and median ratio of fund return to index return for the period from November 2008 to March 2020.

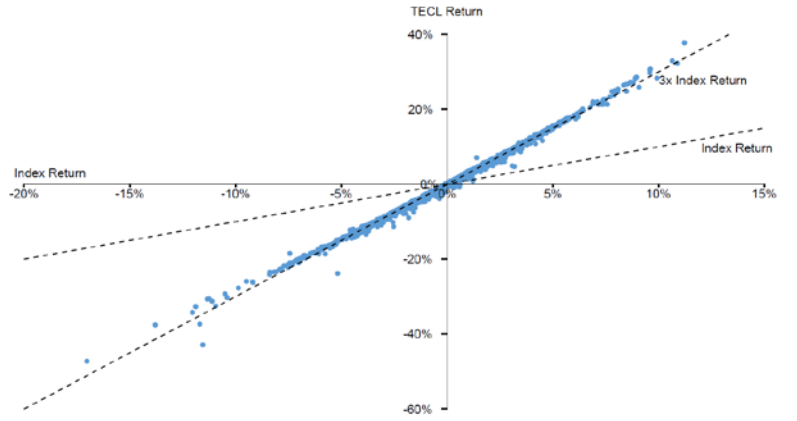
[99] Negative realized returns in the "wrong" direction in these figures correspond to dots plotting in the southeast quadrant for Bull funds or the southwest quadrant for Bear funds.

3X S&P 500 Bull ETF ("SPXL") vs. Underlying Index 5 Trading Day Returns
11/5/08 – 3/17/20



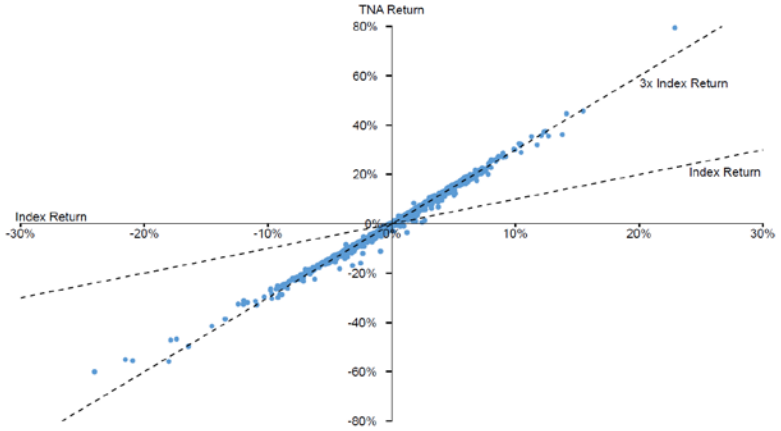
Underlying Index Daily Returns: Std. Deviation (Annualized) = 18.99%; Mean (Annualized) = 13.57%

3X Technology Bull ETF ("TECL") vs. Underlying Index 5 Trading Day Returns
12/17/08 – 3/17/20



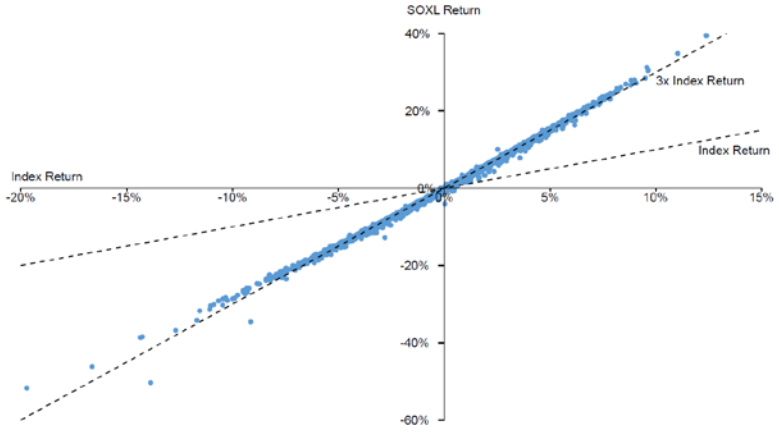
Underlying Index Daily Returns: Std. Deviation (Annualized) = 20.38%; Mean (Annualized) = 20.32%

3X Russell 2000 Small Cap Bull ETF ("TNA") vs. Underlying Index 5 Trading Day Returns
11/5/08 – 3/17/20



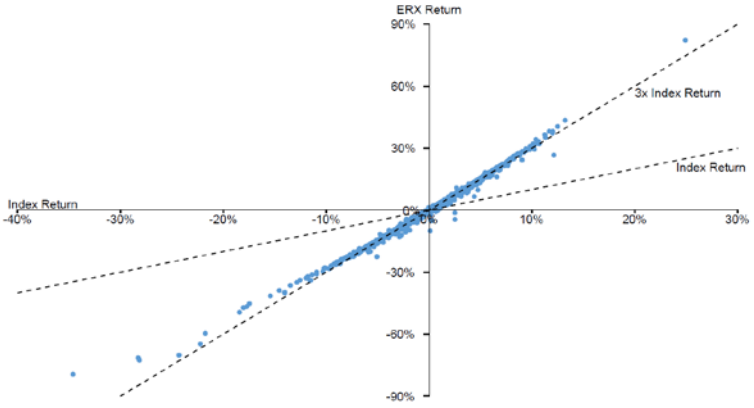
Underlying Index Daily Returns: Std. Deviation (Annualized) = 24.17%; Mean (Annualized) = 11.73%

3X Semiconductor Bull ETF ("SOXL") vs. Underlying Index 5 Trading Day Returns
3/11/10 – 3/17/20



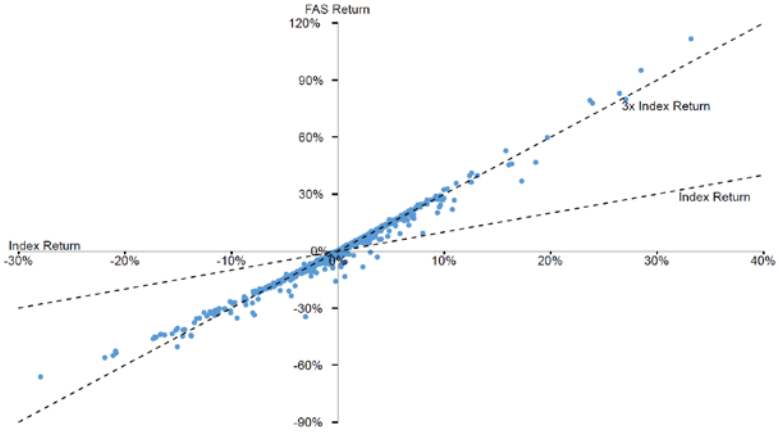
Underlying Index Daily Returns: Std. Deviation (Annualized) = 25.81%; Mean (Annualized) = 20.82%

3X Energy Bull ETF ("ERX") vs. Underlying Index 5 Trading Day Returns
11/6/08 – 3/17/20



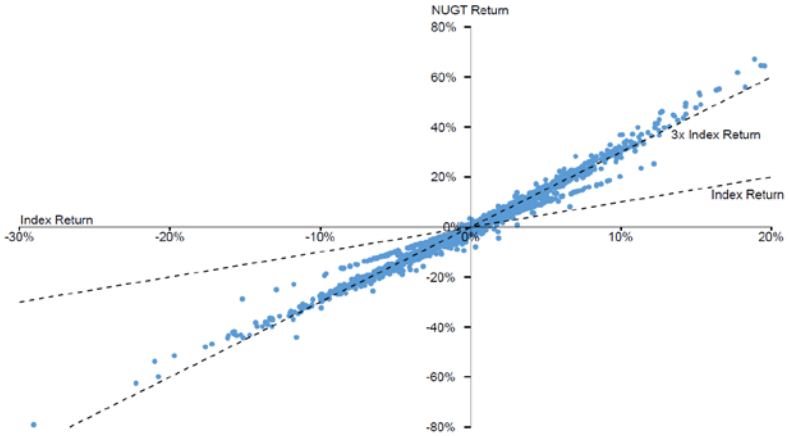
Underlying Index Daily Returns: Std. Deviation (Annualized) = 26.25%; Mean (Annualized) = 1.27%

3X Financial Bull ETF ("FAS") vs. Underlying Index 5 Trading Day Returns
11/6/08 – 3/17/20



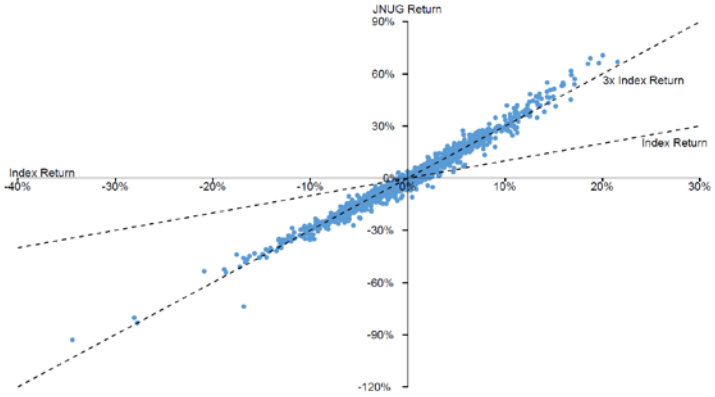
Underlying Index Daily Returns: Std. Deviation (Annualized) = 28.33%; Mean (Annualized) = 13.70%

3X Gold Miners Index Bull ETF ("NUGT") vs. Underlying Index 5 Trading Day Returns 12/8/10 – 3/17/20



Underlying Index Daily Returns: Std. Deviation (Annualized) = 34.56%; Mean (Annualized) = -2.61%

3X Junior Gold Miners Index Bull ETF ("JNUG") vs. Underlying Index 5 Trading Day Returns 10/3/13 – 3/17/20

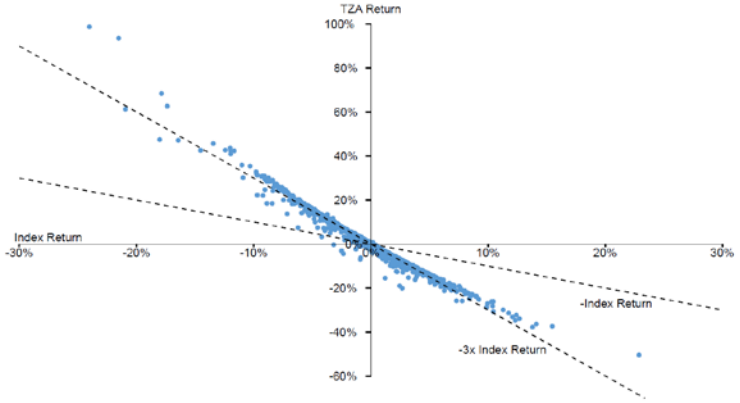


Underlying Index Daily Returns: Std. Deviation (Annualized) = 38.46%; Mean (Annualized) = 5.08%

3X S&P 500 Bear ETF ("SPXS") vs. Underlying Index 5 Trading Day Returns 11/5/08 – 3/17/20

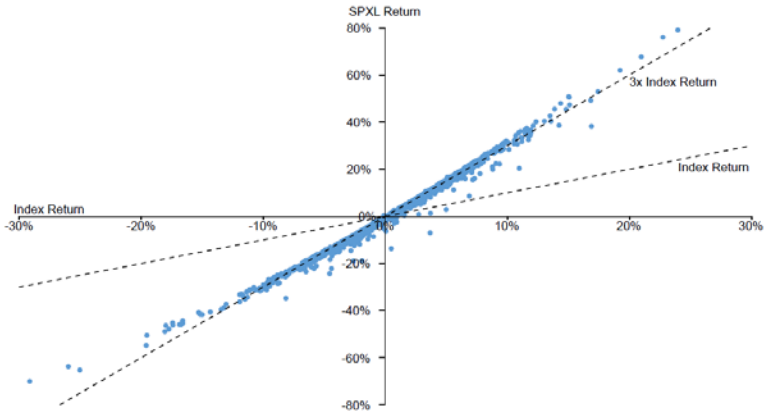
Underlying Index Daily Returns: Std. Deviation (Annualized) = 18.99%; Mean (Annualized) = 13.57%

3X Russell 2000 Small Cap Bear ETF ("TZA") vs. Underlying Index 5 Trading Day Returns 11/5/08 – 3/17/20



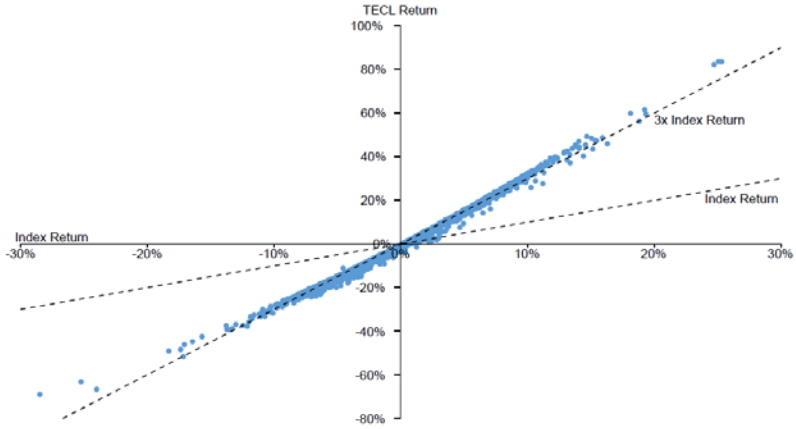
Underlying Index Daily Returns: Std. Deviation (Annualized) = 24.17%; Mean (Annualized) = 11.73%

3X S&P 500 Bull ETF ("SPXL") vs. Underlying Index 21 Trading Day Returns 11/5/08 – 3/17/20



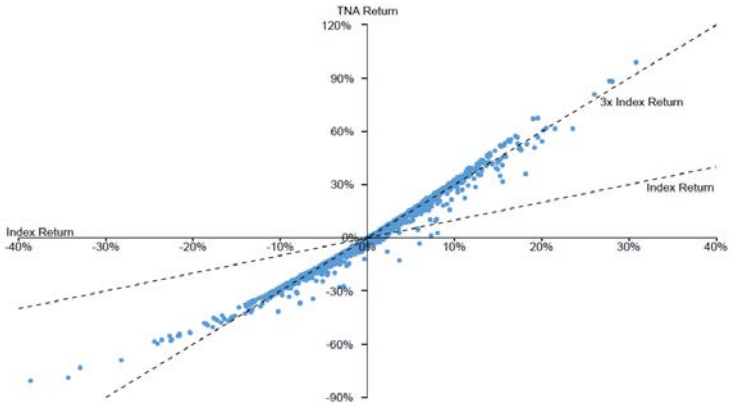
Underlying Index Daily Returns: Std. Deviation (Annualized) = 18.99%; Mean (Annualized) = 13.57%

3X Technology Bull ETF ("TECL") vs. Underlying Index 21 Trading Day Returns 12/17/08 – 3/17/20



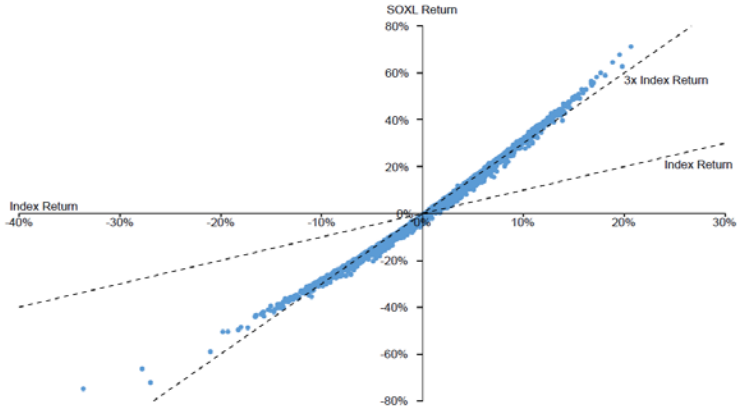
Underlying Index Daily Returns: Std. Deviation (Annualized) = 20.38%; Mean (Annualized) = 20.32%

3X Russell 2000 Small Cap Bull ETF ("TNA") vs. Underlying Index 21 Trading Day Returns 11/5/08 – 3/17/20



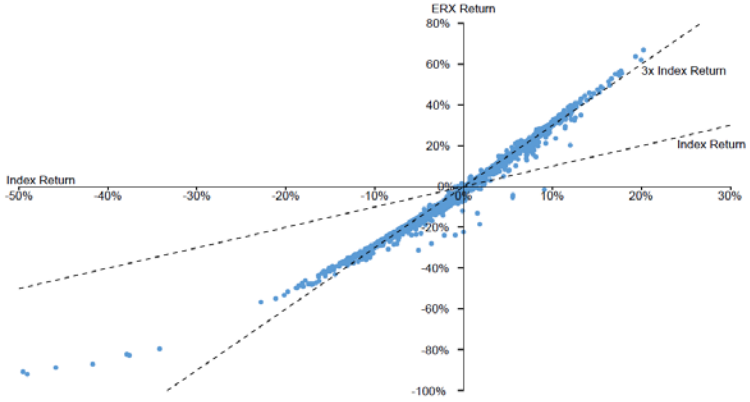
Underlying Index Daily Returns: Std. Deviation (Annualized) = 24.17%; Mean (Annualized) = 11.73%

3X Semiconductor Bull ETF ("SOXL") vs. Underlying Index 21 Trading Day Returns
3/11/10 – 3/17/20



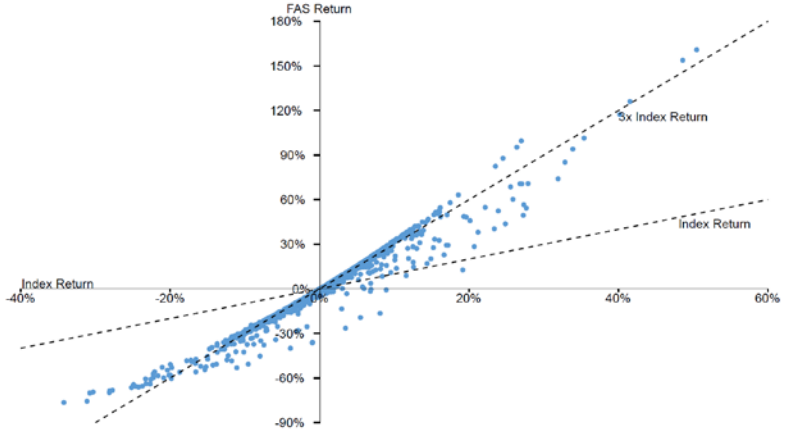
Underlying Index Daily Returns: Std. Deviation (Annualized) = 25.81%; Mean (Annualized) = 20.82%

3X Energy Bull ETF ("ERX") vs. Underlying Index 21 Trading Day Returns
11/6/08 – 3/17/20



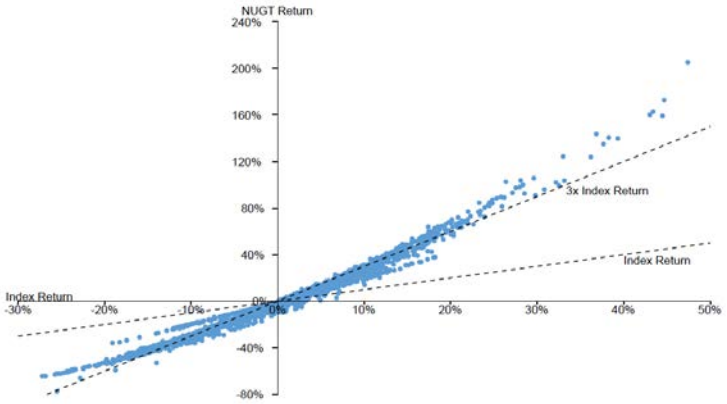
Underlying Index Daily Returns: Std. Deviation (Annualized) = 26.25%; Mean (Annualized) = 1.27%

3X Financial Bull ETF ("FAS") vs. Underlying Index 21 Trading Day Returns
11/6/08 – 3/17/20



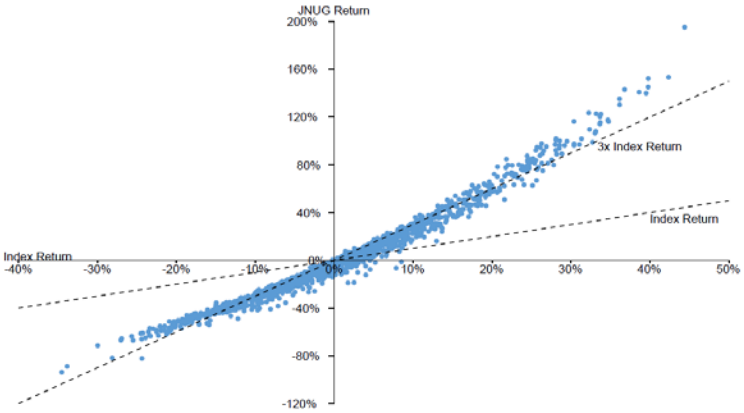
Underlying Index Daily Returns: Std. Deviation (Annualized) = 28.33%; Mean (Annualized) = 13.70%

3X Gold Miners Index Bull ETF ("NUGT") vs. Underlying Index 21 Trading Day Returns 12/8/10 – 3/17/20



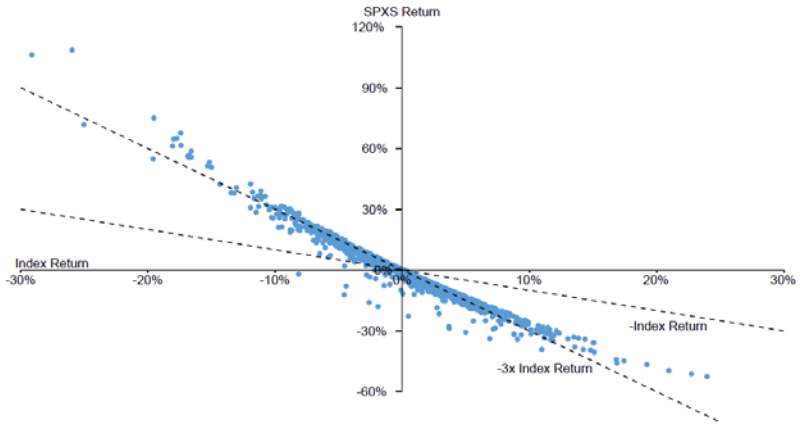
Underlying Index Daily Returns: Std. Deviation (Annualized) = 34.56%; Mean (Annualized) = -2.61%

3X Junior Gold Miners Index Bull ETF ("JNUG") vs. Underlying Index 21 Trading Day Returns 10/3/13 – 3/17/20



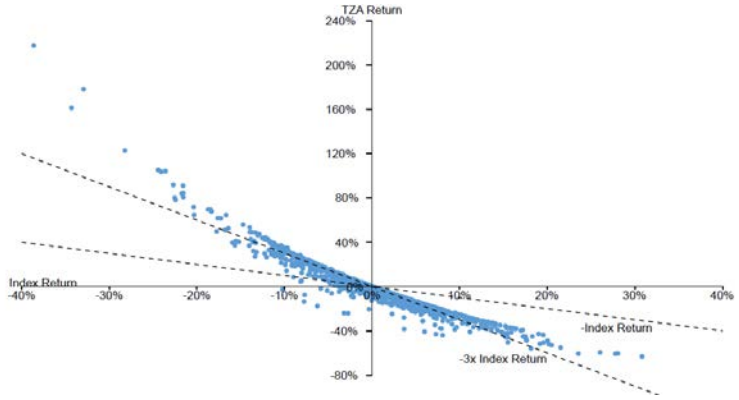
Underlying Index Daily Returns: Std. Deviation (Annualized) = 38.46%; Mean (Annualized) = 5.08%

3X S&P 500 Bear ETF ("SPXS") vs. Underlying Index 21 Trading Day Returns 11/5/08 – 3/17/20



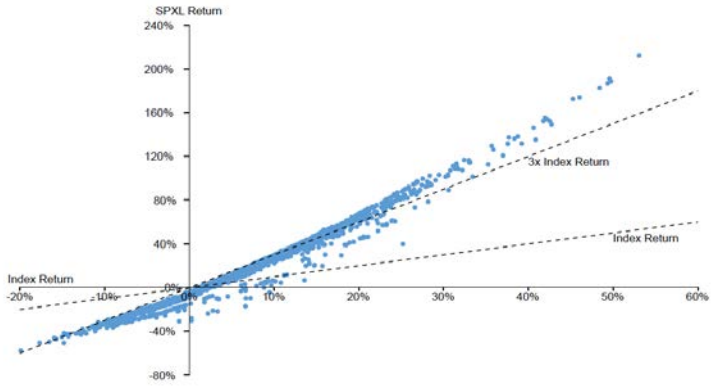
Underlying Index Daily Returns: Std. Deviation (Annualized) = 18.99%; Mean (Annualized) = 13.57%

3X Russell 2000 Small Cap Bear ETF ("TZA") vs. Underlying Index 21 Trading Day Returns 11/5/08 – 3/17/20



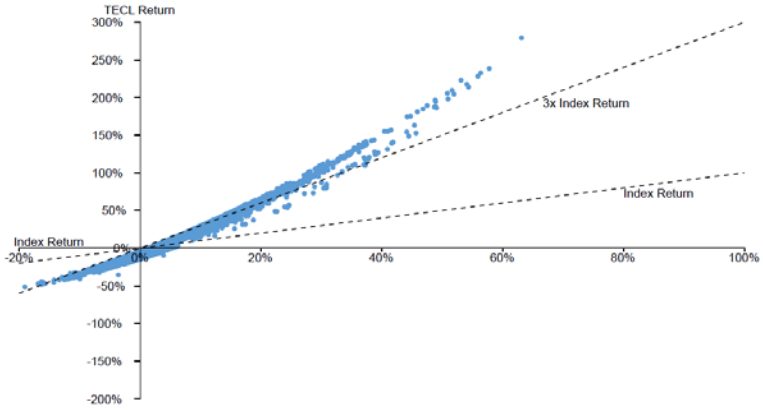
Underlying Index Daily Returns: Std. Deviation (Annualized) = 24.17%; Mean (Annualized) = 11.73%

3X S&P 500 Bull ETF ("SPXL") vs. Underlying Index 126 Trading Day Returns 11/5/08 – 3/17/20



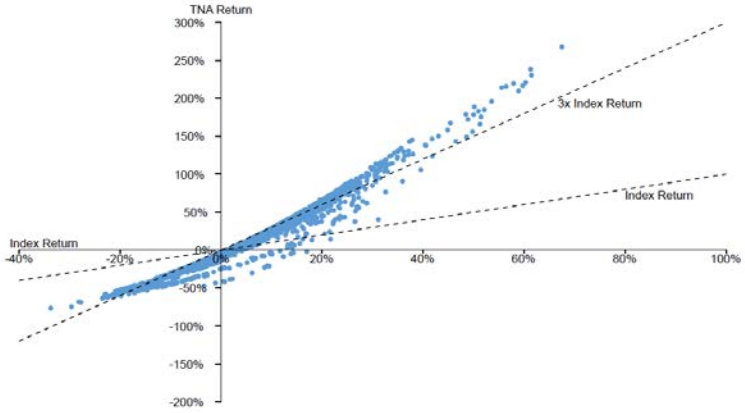
Underlying Index Daily Returns: Std. Deviation (Annualized) = 18.99%; Mean (Annualized) = 13.57%

3X Technology Bull ETF ("TECL") vs. Underlying Index 126 Trading Day Returns 12/17/08 – 3/17/20



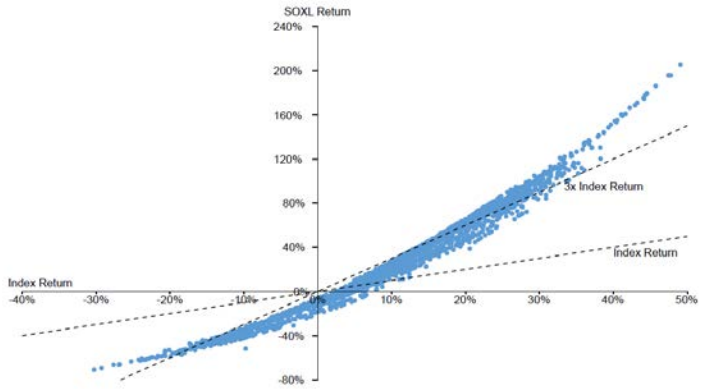
Underlying Index Daily Returns: Std. Deviation (Annualized) = 20.38%; Mean (Annualized) = 20.32%

3X Russell 2000 Small Cap Bull ETF ("TNA") vs. Underlying Index 126 Trading Day Returns 11/5/08 – 3/17/20



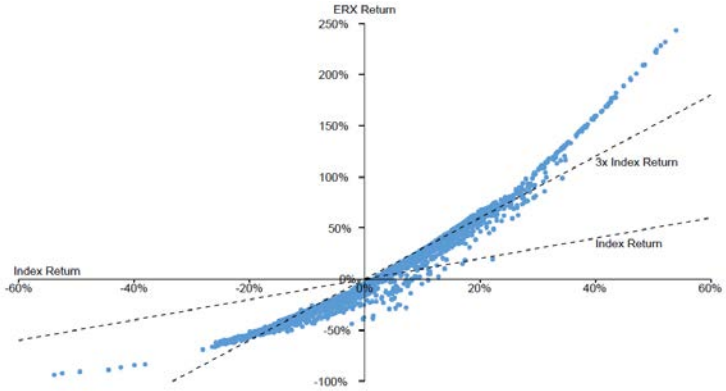
Underlying Index Daily Returns: Std. Deviation (Annualized) = 24.17%; Mean (Annualized) = 11.73%

3X Semiconductor Bull ETF ("SOXL") vs. Underlying Index 126 Trading Day Returns
3/11/10 – 3/17/20



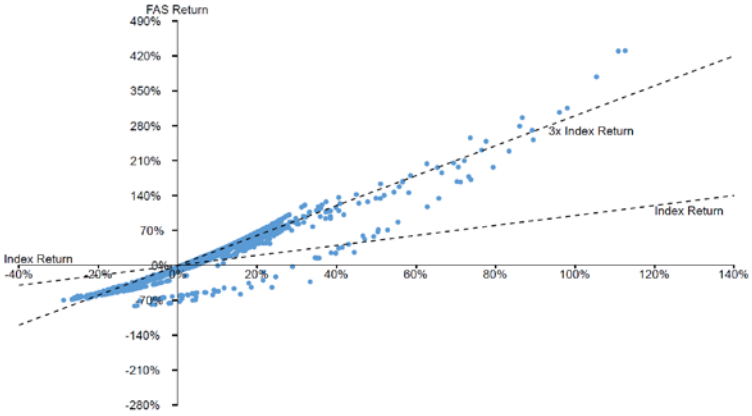
Underlying Index Daily Returns: Std. Deviation (Annualized) = 25.81%; Mean (Annualized) = 20.82%

3X Energy Bull ETF ("ERX") vs. Underlying Index 126 Trading Day Returns
11/6/08 – 3/17/20



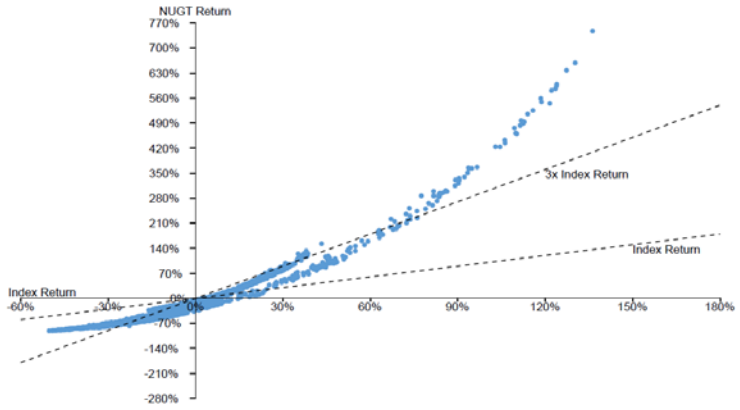
Underlying Index Daily Returns: Std. Deviation (Annualized) = 26.25%; Mean (Annualized) = 1.27%

3X Financial Bull ETF ("FAS") vs. Underlying Index 126 Trading Day Returns
11/6/08 – 3/17/20



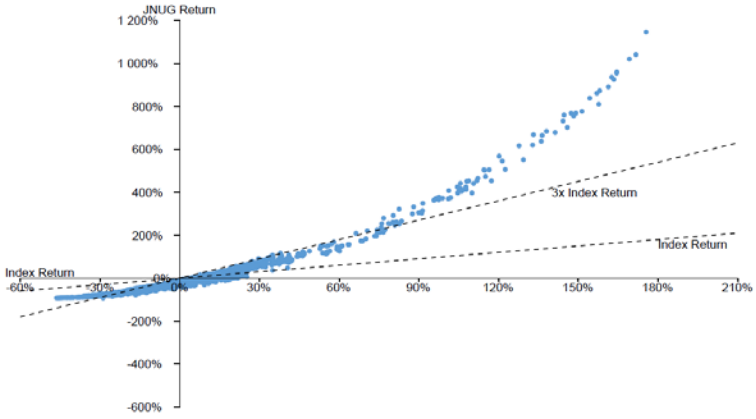
Underlying Index Daily Returns: Std. Deviation (Annualized) = 28.33%; Mean (Annualized) = 13.70%

3X Gold Miners Index Bull ETF ("NUGT") vs. Underlying Index 126 Trading Day Returns 12/8/10 – 3/17/20



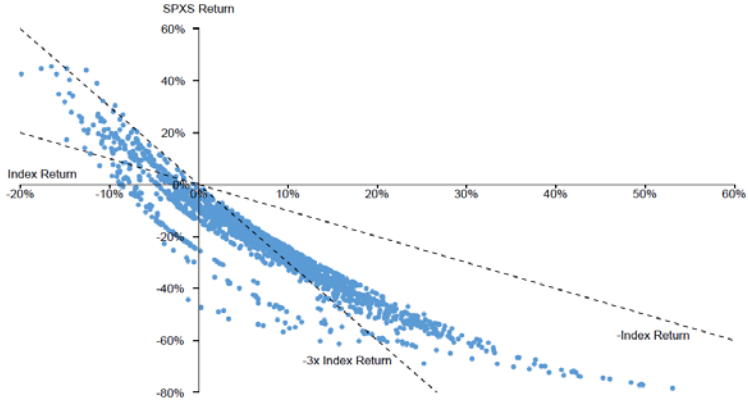
Underlying Index Daily Returns: Std. Deviation (Annualized) = 34.56%; Mean (Annualized) = -2.61%

3X Junior Gold Miners Index Bull ETF ("JNUG") vs. Underlying Index 126 Trading Day Returns 10/3/13 – 3/17/20



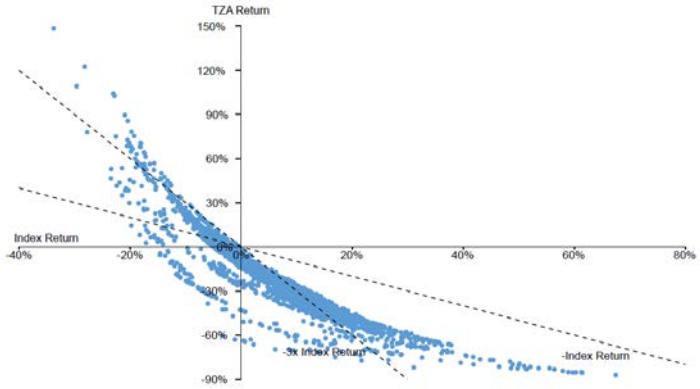
Underlying Index Daily Returns: Std. Deviation (Annualized) = 38.46%; Mean (Annualized) = 5.08%

3X S&P 500 Bear ETF ("SPXS") vs. Underlying Index 126 Trading Day Returns 11/5/08 – 3/17/20



Underlying Index Daily Returns: Std. Deviation (Annualized) = 18.99%; Mean (Annualized) = 13.57%

3X Russell 2000 Small Cap Bear ETF ("TZA") vs. Underlying Index 126 Trading Day Returns 11/5/08 – 3/17/20



Underlying Index Daily Returns: Std. Deviation (Annualized) = 24.17%; Mean (Annualized) = 11.73%

The following three tables provide an alternative way to summarize the L/I funds' performance over longer holding periods. For each of the three holding periods represented in the scatter plots (5, 21, and 126 days), these tables provide some summary statistics for the entire sample of ETF holding period returns in the first three columns. The next six columns provide information about how ETF returns related to performance of the underlying indices. Within each cell, the first percentage number describes the leveraged (inverse) ETF's returns for small increases (decreases) in the underlying index, and the second percentage number in parentheses describes ETF returns associated with large index increases (decreases).[100] For example, the 3X Financial Bull ETF ("FAS") earned a positive return 96.9% of the 5-day holding periods in which the underlying index changed between zero and +5%. When the fund return was negative, its mean (median) loss was only 1.7% (0.3%). The fund earned a positive return every time the underlying index rose by 5% or more over the 5-day holding period.

Three salient characteristics of these three tables can be noted:

- Columns [2] and [3] in the tables indicate that the typical L/I ETF return averages pretty close to its daily multiple of the index return, even over 126-day holding periods. The median ratio is consistently close to three for all funds, while the average tends to deviate (higher or lower than 3), and more so for the longer holding periods. None of these funds routinely fails to perform (qualitatively) as intended, even over long holding periods.[101]

- When the L/I ETF return is "inappropriately" negative (i.e., when the L/I ETF return is negative but the underlying index return was positive for 3X funds, or negative for -3X funds), its mean and median values are not distressingly large. Those losses naturally increase with the holding period's duration, but even over the 126-day holding periods, the mean returns when there is an ETF loss are considerably smaller than the (extreme) anecdotes presented in the Proposing Release.

- L/I fund multi-day returns often exceed their daily target multiple of the index returns, particularly when the index returns are large.

---

[100] The index return cutoffs vary with the holding period duration.

[101] The mean ratios can be impacted by large outliers. For example, the negative mean ratio of the 3X Junior Gold Miners Index Bull ETF (JNUG) return to that of the underlying index over a 21-day holding results from a relatively small number of observations for which an extremely small positive index return coincided with a negative fund return, resulting in a large negative ratio. As just one or several large outliers can impact the mean ratio, I have also presented the median ratio. Note that the median ratio for JNUG is 2.92 for the 21-day holding period, and that the mean return ratios for 5- and 126-day holding periods are both positive (3.11 and 5.13, respectively).

Descriptive Statistics for 5 Trading Day Holding Period Returns

11/5/08 – 3/17/20

	Correlation with Index [1]	Mean ETF Return / Index Return [2]	Median ETF Return / Index Return [3]	Prct ETF Return is Positive [4]	Prct ETF Return is Negative [5]	Prct ETF Return Greater than Index Return [6]	Prct ETF Return Greater Than 3x Index Return [7]	Conditional Mean Return [When ETF Return < 0] [8]	Conditional Median Return [When ETF Return < 0] [9]
Direxion Bull Funds[1]				**Index Return Greater Than 0% but Less Than 5% (Index Return Equal to or Greater than 5%)**					
3X S&P 500 Bull ETF ("SPXL")	99.7%	3.34	2.97	97.8% (100.0%)	2.0% (0.0%)	96.7% (100.0%)	29.1% (72.4%)	-0.3% -	-0.1% -
3X Technology Bull ETF ("TECL")	99.8%	3.09	2.98	98.0% (100.0%)	1.8% (0.0%)	97.1% (100.0%)	29.4% (78.9%)	-0.3% -	-0.2% -
3X Russell 2000 Small Cap Bull ETF ("TNA")	99.6%	3.59	2.98	97.2% (100.0%)	2.7% (0.0%)	95.7% (100.0%)	35.3% (66.9%)	-0.5% -	-0.2% -
3X Semiconductor Bull ETF ("SOXL")	99.8%	2.84	2.99	97.2% (100.0%)	2.8% (0.0%)	95.8% (100.0%)	29.4% (81.9%)	-0.4% -	-0.2% -
3X Energy Bull ETF ("ERX")	99.6%	2.98	2.98	96.9% (100.0%)	3.0% (0.0%)	95.5% (100.0%)	27.5% (77.8%)	-0.9% -	-0.2% -
3X Financial Bull ETF ("FAS")	99.0%	2.68	2.97	96.9% (100.0%)	2.9% (0.0%)	95.8% (100.0%)	26.2% (57.0%)	-1.7% -	-0.3% -
3X Gold Miners Index Bull ETF ("NUGT")	98.9%	2.48	2.96	92.3% (100.0%)	7.6% (0.0%)	89.6% (100.0%)	27.4% (59.3%)	-1.1% -	-0.7% -
3X Junior Gold Miners Index Bull ETF ("JNUG")	98.7%	3.11	3.02	85.9% (100.0%)	13.7% (0.0%)	80.2% (100.0%)	38.3% (61.5%)	-1.7% -	-1.1% -
Direxion Bear Funds[1]				**Index Return Less Than 0% but Greater Than -5% (Index Return Equal to or Lower than -5%)**					
3X S&P 500 Bear ETF ("SPXS")	-99.0%	-2.74	-2.96	94.7% (100.0%)	4.9% (0.0%)	93.0% (100.0%)	35.5% (81.9%)	-0.9% -	-0.2% -
3X Russell 2000 Small Cap Bear ETF ("TZA")	-98.8%	-2.93	-2.96	93.0% (100.0%)	6.5% (0.0%)	91.3% (100.0%)	30.8% (73.2%)	-0.9% -	-0.4% -

Source: Daily closing prices provided by Direxion

Note:

[1] Direxion Bull and Bear funds are listed in increasing order of underlying index volatility from inception through March 17, 2020. The value of "-" in Columns [4] through [9] indicates that there are no observations that meet the specified criteria.

Descriptive Statistics for 21 Trading Day Holding Period Returns

11/5/08 – 3/17/20

	Correlation with Index [1]	Mean ETF Return / Index Return [2]	Median ETF Return / Index Return [3]	Prct ETF Return is Positive [4]	Prct ETF Return is Negative [5]	Prct ETF Return Greater than Index Return [6]	Prct ETF Return Greater Than 3x Index Return [7]	Conditional Mean Return [When ETF Return < 0] [8]	Conditional Median Return [When ETF Return < 0] [9]
Direxion Bull Funds[1]				**Index Return Greater Than 0% but Less Than 10% (Index Return Equal to or Greater than 10%)**					
3X S&P 500 Bull ETF ("SPXL")	99.4%	2.57	2.94	96.9% (100.0%)	3.1% (0.0%)	95.2% (100.0%)	17.5% (65.1%)	-1.0% -	-0.5% -
3X Technology Bull ETF ("TECL")	99.7%	3.31	2.96	96.2% (100.0%)	3.8% (0.0%)	93.7% (100.0%)	24.8% (85.5%)	-0.7% -	-0.4% -
3X Russell 2000 Small Cap Bull ETF ("TNA")	99.0%	1.59	2.99	95.4% (100.0%)	4.6% (0.0%)	93.2% (100.0%)	25.3% (64.3%)	-1.2% -	-0.6% -
3X Semiconductor Bull ETF ("SOXL")	99.5%	2.90	2.99	95.2% (100.0%)	4.8% (0.0%)	92.7% (100.0%)	23.6% (91.5%)	-1.2% -	-0.9% -
3X Energy Bull ETF ("ERX")	98.8%	4.02	2.98	94.0% (100.0%)	5.9% (0.0%)	90.9% (100.0%)	24.0% (82.3%)	-1.4% -	-0.8% -
3X Financial Bull ETF ("FAS")	97.9%	2.47	2.94	95.6% (100.0%)	4.3% (0.0%)	92.5% (98.2%)	18.3% (50.5%)	-1.8% -	-0.5% -
3X Gold Miners Index Bull ETF ("NUGT")	98.5%	2.68	2.90	86.6% (100.0%)	13.4% (0.0%)	79.4% (100.0%)	5.4% (54.0%)	-2.8% -	-2.0% -
3X Junior Gold Miners Index Bull ETF ("JNUG")	98.5%	-1.47	2.92	80.8% (100.0%)	19.0% (0.0%)	70.9% (100.0%)	6.7% (52.8%)	-4.1% -	-2.6% -
Direxion Bear Funds[1]				**Index Return Less Than 0% but Greater Than -10% (Index Return Equal to or Lower than -10%)**					
3X S&P 500 Bear ETF ("SPXS")	-98.2%	-3.28	-2.91	89.0% (100.0%)	10.5% (0.0%)	84.0% (100.0%)	17.4% (71.1%)	-1.8% -	-0.7% -
3X Russell 2000 Small Cap Bear ETF ("TZA")	-96.2%	-5.67	-2.92	85.2% (98.9%)	14.3% (1.1%)	79.8% (98.9%)	16.2% (69.7%)	-2.6% (-2.7%)	-1.2% (-2.7%)

Source: Daily closing prices provided by Direxion

Note:

[1] Direxion Bull and Bear funds are listed in increasing order of underlying index volatility from inception through March 17, 2020. The value of "-" in Columns [4] through [9] indicates that there are no observations that meet the specified criteria.

Descriptive Statistics for 126 Trading Day Holding Period Returns

11/5/08 – 3/17/20

	Correlation with Index [1]	Mean ETF Return / Index Return [2]	Median ETF Return / Index Return [3]	Prct ETF Return is Positive [4]	Prct ETF Return is Negative [5]	Prct ETF Return Greater than Index Return [6]	Prct ETF Return Greater Than 3x Index Return [7]	Conditional Mean Return [When ETF Return < 0] [8]	Conditional Median Return [When ETF Return < 0] [9]
Direxion Bull Funds[1]				**Index Return Greater Than 0% but Less Than 20% (Index Return Equal to or Greater than 20%)**					
3X S&P 500 Bull ETF ("SPXL")	98.7%	2.59	2.82	93.7% (100.0%)	6.3% (0.0%)	90.3% (100.0%)	15.2% (85.2%)	-4.5% -	-3.3% -
3X Technology Bull ETF ("TECL")	98.9%	2.74	2.88	90.8% (100.0%)	9.1% (0.0%)	86.9% (100.0%)	16.9% (90.1%)	-4.5% -	-3.5% -
3X Russell 2000 Small Cap Bull ETF ("TNA")	97.8%	2.58	2.85	88.7% (100.0%)	11.3% (0.0%)	84.2% (99.7%)	13.2% (74.9%)	-5.4% -	-3.2% -
3X Semiconductor Bull ETF ("SOXL")	98.6%	2.77	2.98	84.9% (100.0%)	15.1% (0.0%)	77.9% (100.0%)	8.4% (79.6%)	-6.4% -	-5.6% -
3X Energy Bull ETF ("ERX")	97.2%	3.49	2.86	85.5% (100.0%)	14.5% (0.0%)	80.2% (99.6%)	8.4% (75.4%)	-7.4% -	-5.3% -
3X Financial Bull ETF ("FAS")	94.6%	14.09	2.75	90.8% (97.6%)	9.2% (2.4%)	87.2% (93.5%)	16.0% (49.2%)	-12.8% (-24.4%)	-4.6% (-26.4%)
3X Gold Miners Index Bull ETF ("NUGT")	95.1%	6.97	2.76	57.7% (100.0%)	41.9% (0.0%)	37.7% (98.2%)	0.0% (24.6%)	-11.1% -	-10.1% -
3X Junior Gold Miners Index Bull ETF ("JNUG")	94.6%	5.13	2.91	45.1% (100.0%)	54.9% (0.0%)	29.8% (97.0%)	0.0% (29.7%)	-14.8% -	-11.1% -
Direxion Bear Funds[1]				**Index Return Less Than 0% but Greater Than -20% (Index Return Equal to or Lower than -20%)**					
3X S&P 500 Bear ETF ("SPXS")	-94.2%	-2.96	-2.75	50.0% -	50.0% -	35.2% -	1.2% -	-8.6% -	-6.7% -
3X Russell 2000 Small Cap Bear ETF ("TZA")	-90.1%	-3.13	-2.75	55.4% (100.0%)	44.3% (0.0%)	43.1% (100.0%)	6.3% (50.0%)	-12.9% -	-9.3% -

Source: Daily closing prices provided by Direxion

Note:

[1] Direxion Bull and Bear funds are listed in increasing order of underlying index volatility from inception through March 17, 2020. The value of "-" in Columns [4] through [9] indicates that there are no observations that meet the specified criteria.

Exhibit 1: Index Volatility and Fund Performance for Direxion Daily S&P 500 Bull 3X Shares

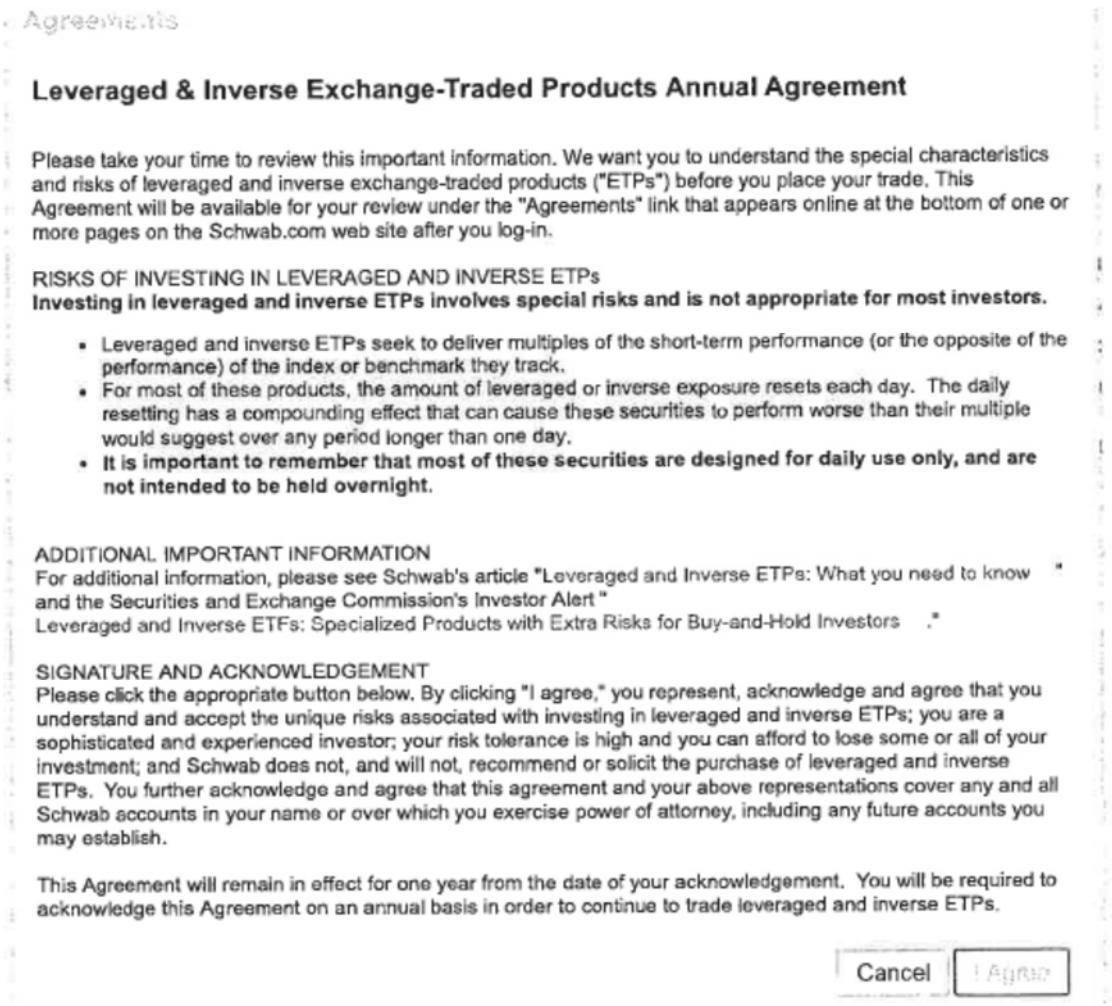
The chart below provides examples of how Index volatility could affect the Fund's performance. Fund performance for periods greater than one single day can be estimated given any set of assumptions for the following factors: a) Index volatility; b) Index performance; c) period of time; d) financing rates associated with leveraged exposure; e) other Fund expenses; and f) dividends or interest paid with respect to securities in the Index. The chart below illustrates the impact of two principal factors – Index volatility and Index performance – on Fund performance. The chart shows estimated Fund returns for a number of combinations of Index volatility and Index performance over a one-year period. Performance shown in the chart assumes that: (i) no dividends were paid with respect to the securities included in the Index; (ii) there were no Fund expenses; and (iii) borrowing/lending rates (to obtain leveraged exposure) of 0%. If Fund expenses and/or actual borrowing/lending rates were reflected, the estimated returns would be different than those shown.

As shown in the chart below, the Fund would be expected to lose 17.1% if the Index provided no return over a one year period during which the Index experienced annualized volatility of 25%. At higher ranges of volatility, there is a chance of a near complete loss of value in the Fund, even if the Index's return is flat. For instance, if the Index's annualized volatility is 100%, the Fund would be expected to lose 95% of its value, even if the cumulative Index return for the year was 0%. Areas shaded red (or dark gray) represent those scenarios where the Fund can be expected to return less than 300% of the performance of the Index and those shaded green (or light gray) represent those scenarios where the Fund can be expected to return more than 300% of the performance of the Index. The table below is intended to isolate the effect of Index volatility and performance on the Fund's performance. The Fund's actual returns may be significantly better or worse than the returns shown below as a result of any of the factors discussed above or in "Daily Index Correlation/Tracking Risk" below.

One Year Index Return	300% One Year Index Return	Volatility Rate				
		10%	25%	50%	75%	100%
-60%	-180%	-93.8%	-94.7%	-97.0%	-98.8%	-99.7%
-50%	-150%	-87.9%	-89.6%	-94.1%	-97.7%	-99.4%
-40%	-120%	-79.0%	-82.1%	-89.8%	-96.0%	-98.9%
-30%	-90%	-66.7%	-71.6%	-83.8%	-93.7%	-98.3%
-20%	-60%	-50.3%	-57.6%	-75.8%	-90.5%	-97.5%
-10%	-30%	-29.3%	-39.6%	-65.6%	-86.5%	-96.4%
0%	0%	-3.0%	-17.1%	-52.8%	-81.5%	-95.0%
10%	30%	29.2%	10.3%	-37.1%	-75.4%	-93.4%
20%	60%	67.7%	43.3%	-18.4%	-68.0%	-91.4%
30%	90%	113.2%	82.1%	3.8%	-59.4%	-89.1%
40%	120%	166.3%	127.5%	29.6%	-49.2%	-86.3%
50%	150%	227.5%	179.8%	59.4%	-37.6%	-83.2%
60%	180%	297.5%	239.6%	93.5%	-24.2%	-79.6%

Source: Direxion Daily S&P 500 Bull 3X Shares Summary Prospectus (February 28, 2020) (accessed on March 19, 2020).

Exhibit 2: Charles Schwab Leveraged & Inverse Exchange-Traded Products Annual Agreement



Agreements

Leveraged & Inverse Exchange-Traded Products Annual Agreement

Please take your time to review this important information. We want you to understand the special characteristics and risks of leveraged and inverse exchange-traded products ("ETPs") before you place your trade. This Agreement will be available for your review under the "Agreements" link that appears online at the bottom of one or more pages on the Schwab.com web site after you log-in.

RISKS OF INVESTING IN LEVERAGED AND INVERSE ETPs

Investing in leveraged and inverse ETPs involves special risks and is not appropriate for most investors.

- Leveraged and inverse ETPs seek to deliver multiples of the short-term performance (or the opposite of the performance) of the index or benchmark they track.
- For most of these products, the amount of leveraged or inverse exposure resets each day. The daily resetting has a compounding effect that can cause these securities to perform worse than their multiple would suggest over any period longer than one day.
- **It is important to remember that most of these securities are designed for daily use only, and are not intended to be held overnight.**

ADDITIONAL IMPORTANT INFORMATION

For additional information, please see Schwab's article "Leveraged and Inverse ETPs: What you need to know " and the Securities and Exchange Commission's Investor Alert " Leveraged and Inverse ETFs: Specialized Products with Extra Risks for Buy-and-Hold Investors ."

SIGNATURE AND ACKNOWLEDGEMENT

Please click the appropriate button below. By clicking "I agree," you represent, acknowledge and agree that you understand and accept the unique risks associated with investing in leveraged and inverse ETPs; you are a sophisticated and experienced investor; your risk tolerance is high and you can afford to lose some or all of your investment; and Schwab does not, and will not, recommend or solicit the purchase of leveraged and inverse ETPs. You further acknowledge and agree that this agreement and your above representations cover any and all Schwab accounts in your name or over which you exercise power of attorney, including any future accounts you may establish.

This Agreement will remain in effect for one year from the date of your acknowledgement. You will be required to acknowledge this Agreement on an annual basis in order to continue to trade leveraged and inverse ETPs.

Cancel | I Agree

Source: Charles Schwab (accessed on February 5, 2020)