BLUE TRACTOR

November 22, 2017

Brent J. Fields
Secretary
U.S. Securities and Exchange Commission
100 F Street, NE
Washington DC 20549-1090

RE: Notice of Designation of a Longer Period for Commission Action on a Proposed Rule Change to Adopt a New NYSE Arca Equities Rule 8.900 and to List and Trade Shares of the Royce Pennsylvania ETF, Royce Premier ETF, and Royce Total Return ETF under Proposed NYSE Arca Equities Rule 8.900 (Release No. 34-81977; File No. SR-NYSEArca-2017-36)

Dear Mr. Fields,

I am pleased to provide the U.S. Securities and Exchange Commission (the "Commission") with additional comments regarding the Commission's October 30, 2017 notice (the "Notice") designating a longer period whether to approve or disapprove the rule change application submitted on April 14, 2017 by NYSE Arca, Inc. (the "Exchange") and the intellectual property from Precidian that underpin the three proposed exchange traded funds (the "ETF Funds") sub-advised by Royce & Associates, LP ("Royce") that the Exchange proposes to list and trade. [1, 2, 3]

These comments complement the letter I submitted to the Commission on November 16, 2017 and the two comment letters received on July 18, 2017 and October 31, 2017 from my colleague Terence Norman at Blue Tractor Group, LLC ("Blue Tractor"). [4]

My letter is bifurcated; **Part A** offers a summary of issues that I hope are of interest to the Commission while **Part B** is a deep dive specifically into additional structural concerns with the Precidian ETF structure.

PART A

Chairman Clayton and Transparency

I'd like to highlight a statement from Chairman Clayton when he spoke earlier this month in New York at the PLI Annual Institute on Securities Regulation. [5] The Chairman concluded his remarks with the following,

> *"I will start where I began, which is to say that a thoughtful approach to transparency can enhance both governance and investor protection. I am committed to increasing transparency about SEC*

[1] See https://www.sec.gov/rules/sro/nysearca/2017/34-81977.pdf (Release No. 34-81977; File No. SR-NYSEArca-2017-36)
[2] See https://www.nyse.com/publicdocs/nyse/markets/nyse-arca/rule-filings/filings/2017/NYSEArca-2017-36,%20Re-file.pdf (Release No. 30-80553; File No. SR-NYSEArca-2017-36)
[3] https://www.roycefunds.com/
[4] See https://www.sec.gov/comments/sr-nysearca-2017-36/nysearca201736.htm (See two letters from Mr. Norman)
[5] https://www.sec.gov/news/speech/speech-clayton-2017-11-08

> *operations, and* ***we also are focused on transparency efforts that further the long-term interests of retail investors*** *[emphasis added]."*

Chairman Clayton affirms that transparency matters, especially in products that will be sold to retail investors. The era of putting investor money into an opaque instrument is past. One only has to witness the remarkable growth in transparent passive ETFs and smart beta products at the expense of traditional mutual funds.

Without doubt, one important element fueling ETF growth is portfolio 'transparency'. It is what advisors and their clients gravitate towards in this era of ubiquitous online information and what ETF market makers and authorized participants need to have in order to make efficient markets with tight pricing.

Very few investors overtly seek non-transparency. Who wants to put money into a 'black box' and have little or no idea of what they were investing in? Investors today seek transparency – they want to know what they are buying. In fact, Precidian's retained consultant Dr. Craig Lewis said as much in his comments on page 69 in the most recent Precidian exemptive relief application filed September 29, 2017,

> *"Historically, ETFs have been able to accommodate* ***investor demand for transparency*** *[emphasis added] by providing information about portfolio composition."*

And we have market evidence that novel non-transparent exchange traded products targeting retail investors that eschew daily portfolio disclosure are challenged to attract assets. NextShares™ exchange traded managed funds ("ETMF") were launched on the Nasdaq Stock Exchange in February 2016 and the seven ETMF equity funds listed to date have combined assets under $50 million. [6]

Precidian's Innovation

I'd like to return to Mr. Criscitello's letter of October 11, 2017 [7] where in his concluding remarks he notes,

> *"Finally,* ***adopters of Precidian's structure*** *[emphasis added] include some of the largest and most well-respected asset managers in the world…They, like Precidian, recognize the changing demands of investors and* ***the constant need for innovation*** *[emphasis added] to benefit investors and managers in a constantly changing global investment landscape."*

Precidian can rightly claim to have innovated a complex process for a non-transparent actively managed ETF using trusted third-parties (i.e. Blind Trust or Confidential Account with trusted agents) under non-disclosure agreements, all with priviledged knowledge of the actual portfolio – indeed, they have an issued patent. But what was the genesis of the concept of using a trusted party for intra-day pricing of a non-transparent ETF?

In September 2005 the American Stock Exchange LLC ("AMEX") was issued a patent (US 6941280 B1) titled '*Determining intra-day net asset value of an actively managed exchange traded fund'*. [8] Initially filed in March 2000, the named inventors are Gary Gastineau and Cliff Weber.

The patent describes the use of a "trusted computer system" housed within an exchange to calculate the intra-day indicative value ("IIV") for a non-transparent ETF. This is akin to the trusted third-party that

[6] https://www.nextshares.com/funds.php?listType=overview as @ November 21, 2017
[7] See https://www.sec.gov/comments/sr-nysearca-2017-36/nysearca201736.htm (letters from Messrs. Criscitello and McCabe)
[8] https://www.google.com/patents/US6941280

Precidian proposes to calcuate the verified intra-day indicative value ("VIIV") because only the 'trusted computer system' under the AMEX patent would would know the actual portfolio constituents and it would be firewalled within the exchange and accessible to a select few. The AMEX patent Summary states in part,

> *"...According to a still further aspect of the present invention, a system includes a trusted computer system.* ***The trusted system including a physical hardware and operating system configuration in which domain configuration and trust relationships are established to determine access to information in the trusted system*** *[emphasis added]."*

And then under the Detailed Description section of the AMEX patent it details the purpose of the 'trusted computer system',

> *"With this intra-day net asset valuation proxy process* ***40****, a stock exchange can calculate in real time, intra-day net asset value proxies for actively managed and enhanced exchange traded funds.* ***Portfolio managers are assured that the positions of the fund are not known outside of the fund so that others, e.g., traders and competitors will not know what securities the fund is buying and selling*** *[emphasis added]. This is important to maintain a fiduciary duty to keep positions confidential where confidentiality is in the interest of the shareholders of the fund. Thus, this technique assures confidentiality while enabling the system* ***10*** *and, the backroom computer* ***11****, to give investors up-to-date, i.e., real time information on valuations to facilitate trading in the mutual fund or trust instrument.* ***Maintaining the confidentiality of this knowledge is important because public dissemination of the information may enable individuals and organizations in effect to trade against the fund. This confidentiality is assured by encrypting the file and only providing the software with the decryption key to decrypt the portfolio position information in the file*** *[emphasis added]."*

To summarize, over 17 years ago in March 2000 the AMEX filed patent applications detailing calculation of the IIV for a non-transparent ETF using a trusted intermediary with privileged knowledge of the actual portfolio.

However, the AMEX subsequently moved away from the concept of calculating the IIV using a 'trusted computer system' and focused instead on a 'proxy portfolio' construct to calculate IIV that became the subject of additional AMEX patents and that formed the basis for Claymore Advisors' (now Guggenheim Funds) application about a decade ago for exemptive relief for an actively managed non-transparent ETF.

Fast forward and Precidian receives a patent in April 2011 (US 7925562 B2).[9] Titled '*NAV and IIV pricing for actively managed exchange traded funds*', the patent critically references the AMEX patent in the Background section when referencing calculation of the IIV for a non-transparent ETF,

> *"In addition, a mechanism has been proposed to determine and publish pricing information of an actively managed ETF, and is described in U.S. Pat. No. 6,941,280 to Gastineau, the contents of which are hereby incorporated herein by reference.* ***Nevertheless, these prior efforts remain deficient*** [emphasis added], *and do not provide sufficient mechanisms to enable the existence of a managed equity-based ETF."*

[9] https://www.google.com/patents/US7925562

I will conclude this section by pointing out that on the first page of his October 12, 2017 comment letter, Mr. McCabe complains that,

> *"…these conflicted "commenters" [his emphasis] have endeavored to stifle innovation in the hopes of protecting a perceived market advantage given to them by previous exemptive approvals. The staff of a public company has been utilized to coordinate with an outside "commenter" to aid in the effort to dissaude approval of this request [a footnote is then referenced that states: See comment letter from **Gary Gastineau** [emphasis added], footnote 1 (May 24, 2017)]."*

Blue Tractor finds it interesting that while Mr. McCabe disparages the source of the comments the Commission has received from Mr. Gastineau, he also does not mention that he and Mr. Gastineau developed intellectual property together through an entity called Managed ETFs LLC and in fact are listed co-inventors on a patent assigned to Managed ETFs LLC. [10, 11]

Dissemination of the VIIV at One-Second Intervals - the 'Goldilocks' Frequency

In the classic children's story young Goldilocks enter a home in the forest and proceeds to taste three bowls of porridge. One bowl was too hot, one was too cold but one bowl was 'just right' so she proceeded to eat it all up.

Interestingly, Precidian's consultants convey a Goldilocks type-story when discussing the 1-second frequency for disseminating the VIIV.

In the exhibits prepared by Drs. Lewis and Cooper both state that under certain conditions the Precidian ETF structure can be reverse engineered. Amazingly however, they disagree on what frequency of VIIV dissemination facilitates reverse engineering.

On page 74, footnote 16 of Precidian's September 29, 2017 application for exemptive relief, Dr. Lewis states this about the VIIV,

> *"As the **disclose frequency approaches real-time** [emphasis added], an investor intent on reverse-engineering the underlying securities and their associated weights could identify the set of securities that actually traded during that interval and solve a straight-forward optimization problem."*

So, Dr. Lewis says that the ability to reverse engineer significantly improves once a VIIV is disseminated at **less** than 1-second reporting intervals.

While on page 81 of Exhibit E of the exemptive relief filing, Dr. Cooper notes that for the VIIV,

> *"**At lower frequencies the correlations improve** [emphasis added] … Thus, at for any period outside of the realm of ultra-high frequency, the movements in the scaled price are very highly correlated …"*

In other words, Dr. Cooper says that the correlation information used for reverse engineering significantly improves once a VIIV is disseminated at **greater** than 1-second reporting intervals.

[10] http://etfconsultants.com/aboutus.html
[11] https://patents.google.com/patent/US7496531B1/en?assignee=managed+etfs+llc

So, we have Precidian's consultants acknowledging that the Precidian ETF structure and 'stylized methodology' for pricing is susceptible to reverse engineering, except Dr. Lewis says it can occur when VIIV dissemination is at high frequency while Dr. Cooper says its at low frequency.

The question that must be asked is if Drs. Lewis and Cooper are telling the Commission that reverse engineering is possible at frequencies less than or greater than 1-second, then why is it not possible to reverse engineer at the 1-second interval itself?

Going back to the Goldilocks analogy, why has Precidian determined that a 1-second VIIV is 'just right' for protecting the underlying portfolio from reverse engineering, when its consultants have stated in Precidian's filing that reverse engineering is in fact possible using the infinite spectrum of frequencies less than or greater than 1-second?

My colleague Terence Norman's letters to the Commission dated July 18, 2017 and October 31, 2017 have amply demonstrated that nothing is 'just right' about the 1-second reporting interval.

PART B

Notice to the Reader: ***Part B is premised on the hypothesis that assumes that some market participants are UNABLE to reverse engineer the Precidian ETF structure.***

How could this be? Well, perhaps they aren't a quantitative hedge fund or perhaps they don't understand statistics and data analysis well enough to reverse engineer Precidian's 'stylized methodology' (although as Terence Norman and Dr. Anthony Hayter illustrate, it is not that difficult). Or maybe they just don't have a predatory bone in their body. So, what happens with these unfortunate traders and investors?

The short answer is that in the absence of an ability to reverse engineer the ETF portfolio, not only will these traders and investors be significantly disadvantaged as a result of asymmetric portfolio information, but their ability to make efficient markets will be materially impaired, as I will document below.

Of course, while these investors attempt to make markets, the sophisticated 'smart money' is readily able to reverse engineer and therefore able to undertake front running to skim off 'alpha' at the expense of these unfortunate investors.

Significant problem areas for investors unable to reverse engineer include:

- *Stock Specific Risk;*
- *Bone Fide Arbitrage;*
- *Secondary Market Trading;*
- *Constructing a Tracking Portfolio;*
- *The Reporting Frequency of the VIIV;*
- *Use of Mid-Point Pricing for the VIIV;*
- *The Premise that there is Equivalent Transparency with a Transparent Active ETF;*
- *Selective Information Disclosure;*
- *Bid-Ask Spreads; and*
- *Risk Control and Monitoring.*

Stock Specific Risk ("SSR")

On page 2 of his October 12, 2017 letter, Mr. McCabe says, *"Precidian believe that an **efficient market** [emphasis added] can be made in shares of the Precidian ETFs"*.

Tight pricing by a market maker for an ETF is materially dependent upon efficient hedging to neutralize the market maker's risk. Knowledge of the stock specific risk ("SSR") in the hedge portfolio components relative to the components of the ETF share is therefore fundamental. Under the Precidian structure the market maker has no daily knowledge of the actual ETF portfolio, so by default the SSR inherent in the hedge relative to the ETF share will be unknown and as illustrated below, this risk can be substantial. As a result, the hedge portfolio will be suboptimal and market makers will undoubtedly reflect that in their pricing spread.

Take an example of a 1,000-stock equal weighted index and a 130-stock active ETF under the Precidian structure derived from the stocks constituting the index. If there existed a futures contract on the index and it was used as a basic hedge against the ETF share a market maker would be exposed to a SSR level of 174% [12], significantly greater than the level of risk the market maker would take on simply by not even bothering to hedge the ETF share. In this example, it should be noted that the 174% SSR level is invariant to the underlying 130 stock portfolio weightings that constitutes the ETF.

Although this may appear a naïve example, a market maker may well assume a stock universe index futures contract is "a reasonable hedge", when nothing could be further from the truth. Without knowledge of the underlying ETF portfolio on a daily basis, market makers will immunize themselves from the risk by widening their spreads or in periods of heightened market volatility, exiting the market altogether.

And as is well known in quantitative finance, one cannot reliably control SSR using statistical methods such as examination of historical correlation coefficients or from construction of a 'tracking portfolio' based upon historical price return data.

In stark contrast, with a transparent active ETF, market makers know before the open the holdings and weightings from the disclosed basket and can therefore quantify the level of SSR in their hedge. Information about the portfolio is fully available so market makers can adjust their hedges and undertake effective inventory management using the basket stocks in the NSCC's portfolio composition file. Under the Precidian ETF structure however, portfolio composition information is unavailable so market makers cannot (a) quantify their SSR exposure, therefore (b) cannot efficiently hedge away their basis point risk as noted above and (c) their inventory management will be inefficient because they must create and redeem only through a third party 'AP Representative'.

The three Royce ETF funds the Exchange proposes to list and trade are small cap funds. While investing in this asset class certainly can offer attractive returns, it also confers special risks that realistically can only be quantified and 'priced into a hedge' if the knowledge of the fund portfolio is available on a daily

[12] With a 1,000-stock equal weighted index futures contract the weight of each stock within the contract is 0.001. If the underlying portfolio comprises just 130 of these stocks that means there are 870 stocks in the futures contract that are not in the portfolio. If one used this equal weighted index futures contract as a hedge against the underlying portfolio there would be sources of SSR. Since each stock is equal weighted in the futures contract this means those stocks in the index, but not in the underlying portfolio, therefore contribute 87% of SSR. This then also means that those stocks in the underlying portfolio must differ in weights, from their index weights, also by 87%. So, the total SSR of the futures contract as a hedge for the underlying portfolio must be 87% + 87% = 174%.

basis. Additionally, the ETF funds may use short positions, further compounding the level of SSR to market makers.

Indeed, Precidian in their April 4, 2017 preliminary Statement of Additional Information (page 4) clearly documents the risks investors (and therefore market makers) will face with small cap and illiquid stocks in the ETF funds,

> *"The fund may **invest a significant portion of its assets in securities of small to medium capitalization companies** [emphasis added] when the subadviser believes those companies offer more attractive value opportunities. Investments in securities of companies with small to medium market capitalizations are generally considered to offer greater opportunity for appreciation but involve special risks. **The securities of those companies may be subject to more abrupt fluctuations in market price** [emphasis added] than larger, more established companies. Small to medium capitalization companies may have limited product lines, markets or financial resources, or they may be dependent upon a limited management group. In addition to exhibiting greater volatility, small and medium capitalization company stocks may, to a degree, fluctuate independently of larger company stocks, i.e., small and medium capitalization company stocks may decline in price as the prices of large company stocks rise or vice versa. **It is anticipated that some of the portfolio securities of the fund may not be widely traded, and that the fund's position in such securities may be substantial in relation to the market for such securities. Accordingly, it may be difficult for the fund to dispose of such securities at prevailing market prices in order to meet redemptions** [emphasis added]."* [13]

To summarize:

1. Unquantified SSR is a real pain point for market makers;

2. Risk is further exasperated if the prospectus and SAI details that the fund holds mainly small cap stocks and a subset are illiquid;

3. The Precidian ETF structure's design does not permit efficient hedging (especially high frequency auto-hedging) nor can authorized participants conduct their own inventory management; and

4. If basis risk is not quantifiable and cannot be efficiently hedged, then market maker pricing will naturally widen and they may well exit the market during period of high volatility.

Bone Fide Arbitrage

Page 25 of Precidian's most recent application for exemptive relief describes how an authorized participant can undertake bona fide arbitrage under a scenario when the market price of the ETF share is greater than the disseminated VIIV,

> *"…Authorized Participants will be able to instruct the AP Representative to buy or sell portfolio securities during the day and thereby engage in **Bona Fide Arbitrage** [emphasis added] throughout the trading day. For example, if an Authorized Participant believes that a Fund is trading at a price that is higher than the value of its underlying portfolio based on the VIIV, the Authorized Participant may sell Shares short and instruct the AP Representative to buy portfolio securities for*

[13] https://www.sec.gov/Archives/edgar/data/1701878/000114420417018966/v463050_n1a.htm (File No. 811-23246)

> *its Confidential Account. When the market price of the Fund's Shares falls in line with the value of the portfolio, the Authorized Participant can then close out its positions in both the Shares and the portfolio securities."*

Under the Precidian ETF structure, calculation of the VIIV is based upon mid-point pricing of its component stocks. However, these very same component stocks that are now needed to be assembled into a creation unit to be delivered to the fund are being bought by the AP Representative at the market asking price.

In other words, the stocks being assembled by the AP Representative for a creation unit that the Authorized Participant requires are being purchased at a higher price than their deemed value in the VIIV when the Authorized Participant decided to undertake the arbitrage. Who is paying the difference – the Authorized Participant? If so, how will that affect their appetite for (1) arbitrage during the course of the day and (2) particularly in times of market turmoil?

With a transparent ETF an Authorized Participant can assemble the creation unit themselves using stocks already in their own inventory or by going to the market - this is not possible under the Precidian structure. What will be the time delay in effecting arbitrage through an AP Representative? Markets can move in milliseconds – has this delay been quantified in terms of cost to an Authorized Participant?

Additionally, since the Authorized Participant also doesn't know the stocks in the actual fund, they cannot calculate their own value for the VIIV using higher frequency pricing. Instead, under the Precidian structure they must rely on the VIIV disseminated every second by the Pricing Agent. In high volatility conditions this lag means that higher frequency arbitrage trading strategies are likely unavailable just at the time when they are probably needed most.

Secondary Market Trading

Investment Company Institute ("ICI") data demonstrates that the vast majority of ETF trading takes place in the secondary market.[14] According to the 2014 report, less than 10% of trading is primary market activity directly between a fund and an Authorized Participant for bona fide or 'riskless' arbitrage and inventory management.

On page 2 the report summarizes that,

> *"On most trading days, the vast majority of ETFs do not have any primary market activity – that is, they do not create or redeem shares. Instead, when accessing liquidity in ETFs, investors make greater use of the secondary market (trading shares) than the primary market (creations and redemptions transacted through an AP). On average, daily aggregate ETF creations and redemptions are a fraction (10 percent) of their total primary market activity and secondary market trading, and account for less than 0.5 percent of the funds' total net assets."*

Moreover, on page 20,

> *"The results of ICI's analysis indicate that for most ETFs, investors use the secondary market more than the primary market. Investors involved in many of these ETF secondary market trades generally are not motivated by arbitrage (i.e., the desire to exploit differences between the market*

[14] https://www.ici.org/pdf/per20-05.pdf

> *price of the ETF and its NAV). These investors do not interact with the ETF directly and do not create transactions in the underlying securities because only the ETFs are trading hands."*

So clearly, anything that impedes secondary market trading is going to have an adverse effect on the market efficiency of an ETF.

On page 26 of their recent application for exemptive relief, Precidian describes how they will facilitate the large volume of secondary market trading for the proposed Royce ETF Funds,

> *"…Because other market participants can also engage in arbitrage activity without using the creation or redemption processes described above, the Confidential Account structure will be made available to any Non-Authorized Participant Market Maker that is willing to establish a Confidential Account under the same terms as described above. In that case, if a market participant believes that a Fund is overvalued relative to its underlying assets, the market participant may sell short Shares and instruct its AP Representative to buy portfolio securities in its Confidential Account,* ***wait for the trading prices to move toward parity*** *[emphasis added], and then close out the positions in both the Shares and the portfolio securities to realize a profit from the relative movement of their trading prices."*

Precidian clearly states that they expect speculative trading in the ETF Funds and that these secondary market traders are to undertake their trading through the AP Representative. And while traders "wait for the trading prices to move toward parity" they will be looking to hedge their position. How is this going to work in light of the multitude of unknown and unquantifiable risks associated with constructing either a hedge or tracking portfolio (note: the reader should refer to the section called 'Constructing a Tracking Portfolio).

Precidian also re-submits as Exhibit D to their recent application a white paper prepared by Dr. Craig Lewis from Vanderbilt University. On pages 69 – 70 Dr. Lewis explains that secondary market investors for the proposed non-transparent Precidian ETF Funds will be able to hedge their basis risk by constructing optimized tracking portfolios just like they do now for fully transparent ETFs,

> *"…* ***Portfolio transparency*** *[emphasis added] has historically been an important ETF design feature because it provides investors with the data needed to construct optimized (or "tracking") portfolios that are highly correlated with the ETF's underlying portfolio. By monitoring the spread between ETF share price and the tracking portfolio (the "ETF spread"), investors can arbitrage possible price differences. The degree of tracking error establishes the level of basis risk associated with arbitrage trades.* ***Arbitrageurs typically construct tracking portfolios using a subset of the underlying securities*** *[emphasis added] because they are willing to tolerate a certain level of basis risk…"*

We completely agree with Dr. Lewis that portfolio transparency is '*an important ETF design feature'* as without it, the construction of a tracking portfolio is significantly hindered. Furthermore, arbitrageurs <u>will not</u> be able to construct a tracking portfolio using '*a subset of the underlying securities*' under a non-transparent ETF structure without daily portfolio disclosure (again, see 'Constructing a Tracking Portfolio). Inability to construct optimal tracking portfolios will have an adverse effect on secondary market trading and by implication the efficiency of the ETF market.

Then later on page 75 of the application Dr. Lewis provides additional interesting commentary about anticipated secondary market dynamics for the Precidian ETF structure,

> "*Investors also can execute arbitrage trades but will* ***be forced to accept a certain level of basis risk*** *[emphasis added] since they will be unable to infer the components of the NAVP [i.e. the actual fund portfolio]. The disclosure of the VIIV does, however, make it possible to construct an optimized portfolio that has relatively low tracking error. The more difficult it is to construct a tracking portfolio, the greater the basis risk and wider the spreads will become. This also implies that [as] the basis risk increases it becomes more likely for any spread that is not eliminated by the AP to be persistent."*

We of course concur with Dr. Lewis (and by inference Precidian) that there will be basis risk (from the SSR previously described). Nobody however has quantified its level and whether market makers will readily accept this increased risk without passing it onto investors in the form of wider and more persistent spreads.

However, where we completely disagree with Dr. Lewis (and by inference Precidian) is that we believe it will not be possible to construct 'optimal' tracking portfolios since market makers will not know the specific contents of the underlying ETF portfolio. Construction of a sub-optimal tracking portfolio will certainly be possible but as described , as a standalone metric a low tracking error is no guarantee of (1) an acceptable tracking portfolio (2) a practical tracking portfolio (3) low SSR and (4) low 'correlation risk'.

To summarize:

1. ICI data illustrates that 90%+ of ETF trading takes place in the secondary market;

2. Precidian accommodates this by incorporating into their ETF structure a mechanism for market makers and other traders in the secondary market (i.e. those who are not Authorized Participants) to be able to access the AP Representative mechanism so as to be able to undertake general market making and speculative trading and arbitrage transactions (to be clear, <u>not</u> bona fide or 'riskless' arbitrage as they cannot create and redeem with the fund);

3. But, when undertaking these secondary market trading activities market makers will want to hedge their positions;

4. We then have Dr. Lewis confirming that secondary trading by definition will be less efficient because of the basis risk the secondary trader MUST take on with their hedge because they do not know the contents of the actual portfolio;

5. Again, refer to this letter's earlier section on Stock Specific Risk (SSR) that describes and quantifies the basis point risk when hedging;

6. Dr. Lewis says secondary traders may try to mitigate this by constructing a 'tracking portfolio' but as previously described, whether this 'tracking portfolio' is either acceptable or even practical is open to question as the underlying portfolio securities remain unknown; and finally

7. Dr. Lewis admits that because basis risk will be present when hedging takes place, pricing spreads from market makers in the secondary market will likely become persistent.

Has there been analysis presented that quantifies this inefficiency and its trickle-down effect on the pricing that retail investors will be able to purchase the ETF Funds versus the true NAV?

Constructing a Tracking Portfolio

On page 69 of Exhibit D, Dr. Lewis describes a fundamental feature of transparent exchange traded funds,

> *"Portfolio transparency has historically been an important ETF design feature because it provides investors with the data needed to construct optimized (or "tracking") portfolios that are highly correlated with the ETF's underlying portfolio. By monitoring the spread between ETF share price and the tracking portfolio (the "ETF spread"), investors can arbitrage possible price differences.* ***The degree of tracking error establishes the level of basis risk associated with arbitrage trades*** *[emphasis added]."*

Although the consolidated tape disseminates an IIV for a transparent ETF on a 15-second basis, market makers and Authorized Participants will ignore the IIV since its 'stale information' in an equity capital markets environment where high frequency trading is the norm. Instead as Dr. Lewis describes, they construct tracking portfolios using either the portfolio constituents in the published NSCC basket file or of proprietary construction – in both cases they know the underlying portfolio's holdings and weightings. The tracking portfolio they construct will be priced using much higher frequency price feeds (sub-second) to provide a more accurate and representative price for the ETF than either the disseminated IIV or the share price quoted on an exchange. The tracking portfolio can be used for arbitrage, as well as hedging purposes, by purchasing or selling its constituents, as the case may be.

What is of crucial importance is Dr. Lewis' statement that, *"The degree of tracking error establishes the level of basis risk…"* What Dr. Lewis is saying is that low tracking error equates to low basis risk and high tracking error equates to high basis risk. High basis risk for market makers is of course reflected in wider spreads or even exiting the market altogether if their risk becomes too pronounced and uncertain.

So, it is quite perplexing when Dr. Lewis says the following on page 73 when waxing about the merits of the Precidian ETF structure,

> "*Since relatively high frequency disclosure can be used to estimate the correlation between current portfolio value and the ETF share price,* ***it also accommodates the construction of tracking portfolios much like a fully transparent ETF*** *[emphasis added]."*

While certainly anyone can construct a tracking portfolio against an unknown portfolio, it is wholly disingenuous of Dr. Lewis to suggest this portfolio would be similar to a tracking portfolio constructed with full knowledge of the actual portfolio.

Therein lies the rub - a tracking portfolio constructed against a known portfolio can be dynamically adjusted contemporaneously as the underlying portfolio stocks alter in price. In stark contrast, a tracking portfolio for an unknown portfolio built against a time series of 1-second reported VIIVs can only be adjusted every second. By implication, the tracking portfolio is out of date almost instantaneously as the stocks in the actual portfolio, in most instances, change in price in millisecond increments. Therefore, it most certainly is NOT the case that a tracking portfolio constructed against an unknown portfolio under

the Precidian ETF structure can be viewed as very similar to a tracking portfolio constructed using a fully transparent fund portfolio.

In the absence of an ability to reverse engineer the actual fund portfolio, constructing a tracking portfolio against an unknown portfolio based solely upon historical correlations between the VIIV and the market price will expose market makers to significant risk.

Under the Precidian ETF structure, the portfolio is unknown and therefore so is each portfolio's stock specific risk exposure. Constructing a tracking portfolio against a time series of VIIVs **does not allow** the market maker to:

1. Align the stock risk exposures between the actual and tracking portfolio constituents; or

   The market maker can incur significant SSR because they do not know the risk profile of the unknown underlying portfolio.

2. Identify with precision what stocks should go into the tracking portfolio in the first place; or

   For example, a fund's investable universe described in the SAI may be all-cap, yet the fund manager has decided to tilt all portfolio holdings over the short term only towards large cap. With a transparent ETF that information would be known but would not be under the Precidian ETF structure. If the tracking portfolio included small and mid-cap stocks the market maker will incur unnecessary cost and risk.

3. Knowingly include the constituents of the actual portfolio in the tracking portfolio to reduce SSR;

   As Dr. Lewis states on page 69 when referring to a transparent ETF, "Arbitrageurs typically construct tracking portfolios using a subset of the underlying securities because they are willing to tolerate a certain level of basis risk. In effect, the corresponding loss of precision is offset by improvements in transactional efficiency. The aggregate impact of arbitrage trading is to change the supply and demand for both the ETF and the underlying securities so that the ETF spread is reduced to relatively small levels."

   So, under the Precidian structure, a market maker will not know if any of the stocks chosen for the tracking portfolio are a subset of the actual portfolio. This inability to identify the stocks within the underlying fund must also have a negative effect on the arbitrage mechanism since every stock included within the tracking portfolio, that is not in the fund, must dilute the 'buy and sell' pressures required for effective arbitrage.

Reporting Frequency of the Precidian ETF VIIV

In Exhibit D of Precidian's September 2017 filing (page 69) Dr. Lewis observes that, *"A key consideration associated with intraday security trading is the speed with which market prices reflect new information."*

Precidian states that its verified intraday indicative value ("VIIV") will be disseminated via the consolidated tape on a 1-second basis, in contrast to the pricing feed used by all current transparent ETFs where dissemination of the intraday indicative value ("IIV") is on a 15-second basis. So certainly, on paper the

proposed VIIV appears to be a 'higher frequency' price signal than the current IIV. But is that really the case?

As is widely known, institutional traders pay little if any attention to the 15-second IIV for an ETF because the capital markets can materially change in sub-second intervals, never mind 15 seconds. In effect, the IIV is 'stale' before it leaves the gate. In practice, for transparent ETFs market makers and Authorized Participants obviate the issue of 'stale' pricing by inputting their own high frequency (i.e. sub-second) pricing inputs for the portfolio constituents to calculate on a real-time basis a proprietary IIV for the ETF on a milli-by-millisecond basis. Since the portfolio is fully disclosed on a daily basis for a transparent ETF, for market makers and Authorized Participants (or any other party) this exercise is trivial.

Sub-second pricing (including 1 millisecond or one-one thousands of a second) is essential in the capital markets. High frequency trading is a large and fast-growing segment of the equity (and ETF) capital markets and estimates are that it now accounts for 30% plus of all trading, including a fast-growing share of ETF trading. A quick google search comes up with scads of articles on high frequency trading in ETFs, including ones from Morningstar.com[15] and ETF.com[16].

A recent report by Mr. Phil Mackintosh, Head of Trading Strategy and Analysis at Virtu Financial (KCG), a leading ETF market maker and high frequency trading firm, documents how crucial 1 millisecond trading is.[17]

As well, in an interview with ETF.com Mr. Mackintosh expounds just how important high frequency pricing is for efficient ETF capital markets, stating that,

> *"The fact that the U.S. markets are so highly electronic and interconnected is also critical, because it adds certainty to a market maker. If they see stocks as cheap versus an ETF, market makers can send a basket instantaneously and have most of the fills back in a split second. That's really important. And it also means an ETF market maker needs to have the best latency and trading technology. In a less connected, or less electronic, market, the fills would be held up, positions would be legged, and other traders might even be able to trade ahead of some of the basket. This would initially cause losses for market makers, but ultimately it would increase the spread required before arbitrage took place."*[18]

How is a market maker or Authorized Participant going to calculate their own sub-second pricing for the Precidian ETF when the specific portfolio contents are unknown on a daily basis? How are they to transact on a sub-second basis when they must undertake arbitrage, hedging and creations through the AP Representative intermediary account? Can sub-second auto-hedging so widely used by market makers even exist under the Precidian model?

Because the VIIV will reflect new pricing information on a 1-second basis, while many other participants in the capital markets employ sub-second informational inputs, how will indicative pricing for a Precidian ETF reflect what is actually happening? Because an ETF is a derivative security, its 'real time' indicative value is reflective of its underlying component stocks. Therefore, as they change, so must the value of the ETF in order to accurately reflect an indicative NAV. The 1-second reported VIIV does not take into

[15] http://www.morningstar.com/cover/videocenter.aspx?id=642076
[16] http://www.etf.com/sections/blog/8352-high-frequency-trading-benefits-etfs?nopaging=1
[17] https://www.virtu.com/uploads/.../the-need-for-speed-v-how-important-is-ms.pdf
[18] http://www.etf.com/sections/features/23245-mackintosh-on-what-fuels-low-cost-trading.html?nopaging=1

account the full trading activity of the component stocks. In low volatility environments this may not be such an issue, but in times of market stress when prices can move by significant amounts in very short periods of time this becomes a major issue.

Apparently Precidian's hands are tied and they have no choice but to remain with a VIIV frequency on a 1-second basis. Dr. Lewis states as much in Exhibit D of Precidian's September 2017 filing (page 74) when he notes,

> *"In determining the appropriate frequency of VIIV disclosures, a number of trade offs must be considered. If disclosure latency is too high, it may not provide sufficient information, particularly if portfolio turnover also is high.* ***Alternatively, asynchronous trading of the underlying securities may render sub-second disclosure unsuitable because of the increased possibility of reverse-engineering the underlying portfolio securities*** *[emphasis added]."*

Finally, on page 23 of Precidian's September 2017 application for exemptive relief they state,

> *"…if a Fund determines that the current quotations for a portfolio security are no longer reliable for purposes of calculating the VIIV, which could be the situation when an Exchange institutes a trading halt in a portfolio security or if a security is otherwise deemed to be illiquid, that fact will be* ***promptly*** *[emphasis added] disclosed on the Fund's web site…"*

Precidian has not defined just what "promptly" means so how will the disclosure lag affect the veracity of the disseminated VIIV? How stale will the VIIV get before anyone has the notion to go check a fund's website? I say this with tongue in cheek but are they going to have to press release a trading halt out the market to let everyone know that the fund actually holds that stock, otherwise who is going to know? And if the fund's website is ever down then what is the work-around to get this material news out to the market? Of course, with a fully transparent ETF (or an ETF with creation baskets representing a large proportion of the actual portfolio) a portfolio security that is subject to a trading halt by an exchange or deemed to be illiquid is immediately known.

Use of Midpoint Pricing for the VIIV

It's trivial to calculate with certainty the mid-point price using a security's bid and ask (offer) prices. However, if only a mid-point price is quoted it is not possible to know with certainty the actual bid and ask price. This means information is lost and therefore it must have an effect on market efficiency.

Precidian claims in their September 2017 filing (on page 23) that, *"Specifically, quotations based on the mid-point of bid/ask spreads more accurately reflect current market sentiment by providing real time information on where market participants are willing to buy or sell securities at that point in time."*

Assume a mid-point price of 100. It could just as easily be derived from a bid/ask price of 99/101 or 50/150. Although this illustration is exaggerated, just how is the market to know the real level of bid and ask in order to gauge market sentiment, especially with small cap securities that are not widely traded and that Precidian has disclosed will be the investment focus for the three Royce ETFs that the Exchange wishes to list and trade.

In essence, since only partial information (i.e. mid-point pricing) relating to each portfolio stock is being used to calculate the ETF VIIV then its fair to say that the VIIV itself must contain only partial information.

Lacking knowledge of the stocks comprising the fund and their bid/ask spreads must effect the perception of the liquidity of the ETF. A perception of an illiquid ETF can only translate itself into wider bid/ask spreads and even possibly negatively impair its actual liquidity.

Do Active Shares℠ Have Equivalent Transparency with a Transparent Actively Managed ETF?

This is what Precidian and their consultants would like us to believe. Dr. Lewis in his white paper on page 73 definitively states,

> *"…an actively managed ETF that uses a BT [Blind Trust] structure* ***is equivalent in all material respects to active ETFs that provide daily transparency*** *[emphasis added] with two exceptions. First, it does not disclose the NAVP [the actual ETF portfolio]. Second the BT [Blind Trust] structure* ***relies on the one-second frequency of the VIIV to compensate for this lack of portfolio transparency*** *[emphasis added]."*

So, it all come down to the veracity of the 1-second VIIV. Somehow this is the panacea for every other structural concern.

However, as documented above, the problems associated with 1-second VIIV reporting frequency alone disprove Dr. Lewis' contention, never mind the other issues I delve into in this letter, most importantly that a 1-second VIIV can readily and easily be reverse engineered with precision by a predatory trader.

The Commission was crystal clear about this very same issue in the April 17, 2015 letter to Precidian's counsel, where concerns were raised on Page 5, footnote 20 that less transparency will lead to wider spreads,

> "*Based on Market Maker Discussions, the staff understands that an ETF which has something less than full transparency will always exhibit a greater and more persistent premium or discount and wider intraday price spread than identical product with full portfolio transparency."*

To recap, under the Precidian ETF structure:

1. The level, or even a reasonable estimate, of the SSR cannot be quantified for hedging purposes;
2. A creation unit price (bid and offer) upon which to base informed arbitrage decisions cannot be calculated;
3. There exists an unknown level of basis point risk in secondary market arbitrage operations;
4. Market makers cannot auto hedge their positions i.e. in milliseconds;
5. The reported VIIV and ETF share price cannot be calculated contemporaneously;
6. Knowledge of any 'staleness' of stock prices constituting the reported VIIV remain unknown;
7. Knowledge of the true ETF liquidity remains unknown;

8. There is no option available for market makers to proxy illiquid stocks within the underlying portfolio with more liquid equivalents i.e. to produce a superior estimate for the underlying NAV; and

9. The stocks within the underlying portfolio remain unknown except to the Confidential Account (again, ignoring that there will be sophisticated market participants who can reverse engineer a Precidian ETF as demonstrated in Terence Norman's July 18, 2017 and October 31, 2017 comment letters).

The Commission's Fundamental Concern over Asynchronous Information Disclosure Remains Unaddressed by Precidian

On page 4 of the Commission's April 17, 2015 letter to Precidian's counsel [19], a fundamental concern is raised about selective disclosure of non-public information when referencing the third-party who would have confidential knowledge of the actual portfolio under the Precidian ETF structure that the Authorized Participant would have to transact through,

> *"Even more fundamental, this disclosure would seem to run a foul of a foundational federal securities laws principle. The Commission has consistently opposed the selective disclosure of non-public material information, in particular where the recipients of such information could use it to trade for their own profit."*

In other word, asynchronous disclosure of the actual portfolio occurs since its not made available to anyone but the third-party under a non-disclosure agreement and only one group (an Authorized Participant transacting in the primary market) would be able to transact with the fund through this third-party (referred by Precidian at that time as a 'Blind Trust' but now termed a 'Confidential Account' using an 'AP Representative' for transacting).

The Commission on page 5 then specifically discusses this last point,

> *"Applicants' proposal would create asymmetry between market participants by providing confidential disclosures to the ETFs' Authorized Participants but no other market participants. In light of that, we find it difficult to reach the conclusion that the proposed ETFs would be "necessary or appropriate in the public interest" [their emphasis], one of the statutory standards for exemptive relief."*

So the Commission clearly noted two important concerns in April 2015: (1) asynchronous information release to one group (the third party under a non-disclosure and nobody else) that can be seen as a violation of federal securities law principles and (2), even if one could ignore the first concern, the ability of just an Authorized Participant to transact with the fund through the third party, and no other market makers, created an asymmetric capital market environment, which was unacceptable to the Commission.

Fast forward to Precidian's latest application for exemptive relief filed on September 29, 2017 and on page 11 the following is stated when describing how a Confidential Account can now be used by both an Authorized Participant and by market makers,

[19] funds.eatonvance.com/includes/loadDocument.php?fn=19309.pdf&dt=FundPDFs

> *"Authorized Participants and entities that make a market in Shares, but are not Authorized Participants ("Non-Authorized Participant Market Makers)….will establish and maintain, a Confidential Account with an AP Representative…the AP Representative will be restricted from disclosing the portfolio securities of a Fund. The Confidential Account will enable Authorized Participants and Non-Authorized Participant Market Makers to transact in the underlying basket securities through their AP Representative, enabling them to effectively arbitrage and/or engage in in-kind creation or redemption activity without knowing the identify of those securities."*

So, Precidian attempts address the second concern about an asymmetric market by letting market makers transact as well.

But unbelievably, they have doubled down on the more important first concern by actually enlarging the pool of institutional investors and traders who will now have the benefit of access to a third party Confidential Account.

If the Commission's concern in 2015 was that access by just the Authorized Participant (versus all other investors, institutional and retail) created asynchronous disclosure issues then surely access now by both Authorized Participants and market makers only amplifies the concern.

We will now have a situation where more than one selected firm will have knowledge, preferential insight and non-public access that nobody else will have. Now there will be many of them! Precidian has done nothing to address the Commission's serious concerns that "*…disclosure would seem to run a foul of a foundational federal securities laws principle."*

Precidian ETF Bid-Ask Spreads

On page 18 of Precidian's September 29, 2017 application for exemptive relief, some boiler plate language states that,

> *"The secondary market price of Shares trading on an Exchange will be based on a current bid/ask market. The secondary market price of Shares of any Fund, like the price of all traded securities, is subject to factors such as supply and demand, as well as the current value of the portfolio securities held by a Fund."*

As I hope I have outlined in my letter, there is a lot more going on that will affect bid-ask spreads than supply and demand and portfolio stock prices. These include:

1. The level of Stock Specific Risk;
2. The level of Basis Point Risk;
3. The level of Correlation Risk;
4. The use of mid-point pricing for detecting arbitrage opportunities;
5. The inability to effectively hedge or construct tracking portfolios;
6. Impediments to primary and secondary market trading and arbitrage; and

7. Impediments to high frequency trading.

Finally, an inviolable tenant of transparent ETFs is that tight spreads for an ETF are fully dependent upon the liquidity of the shares in the portfolio. An ETF itself can be thinly traded but so long as the disclosed portfolio shares are liquid then the ETF will have tight pricing. Why? Because liquid portfolio stocks mean Authorized Participants and market makers can efficiently assemble stocks for creation and hedging purposes.

So how will the market deal with an undisclosed portfolio under the Precidian structure? How will it know if portfolio stocks are liquid or not if they are not disclosed? Precidian's April 4, 2017 preliminary registration statement and SAI disclose that the two of the three Royce funds the Exchange wishes to list and trade are small cap funds – a sector host to many thinly traded and illiquid securities.

Risk Control and Monitoring

There is an adage in business often attributed to management guru Peter Drucker that, '*You cannot manage what you cannot measure*'. Capital markets risk, in all its forms, is no exception. And although I have already detailed risks that market participants will be unable to quantify under the Precidian ETF structure it is worth making a few more points on this most important subject.

A lack of understanding of the underlying funds risks will leave market participants vulnerable to being misled by risk metrics, such as correlation, which could easily lead to unrealistic expectations of 'risk management'. Why do I say this? Because under the Precidian structure the only risk metric available is correlation between the market price and the VIIV. These correlations:

1. Are based upon historical data;
2. Can change over time;
3. Can at times present assets that were previously calculated as being negatively correlated as now positively correlated; and
4. Are purely descriptive and do not allow the sources of risk to be analysed.

Why would a market maker put all their trust in the correlation metric without enacting wider and persistent bid/ask spreads as compensation for this risk?

In terms of 'risk monitoring', without insight into the actual stock specific risks that make up the portfolio, Precidian's proposed structure is akin to driving a car with one's eyes closed and only being allowed to open them every second to look just into the rear-view mirror. As the driver and his car are an accident waiting to happen, so is the proposed structure since there can be, and is, no risk monitoring.

Conclusion

I trust these comments clearly document the very significant problems with the Precidian ETF structure, including:

- *Stock Specific Risk;*
- *Bone Fide Arbitrage;*
- *Secondary Market Trading;*

- *Constructing a Tracking Portfolio;*
- *The Reporting Frequency of the VIIV;*
- *Use of Mid-Point Pricing for the VIIV;*
- *The Premise that there is Equivalent Transparency with a Transparent Active ETF;*
- *Selective Information Disclosure;*
- *Bid-Ask Spreads; and*
- *Risk Control and Monitoring.*

Combined with the comments in my November 16, 2017 letter and the two letters received from my colleague Terence Norman on July 18, 2017 and October 17, 2017 concerning the ease with which the Precidian ETF structure can be reverse engineered, the Exchange's rule change application should be disapproved.

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Thank you in advance for your consideration of my commentary. I welcome any questions the Commission may have as a result and can be reached at [redacted].

Sincerely,

Simon P. Goulet
Co-Founder
Blue Tractor Group, LLC