

BLACKROCK®

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Submitted via electronic filing: <https://www.sec.gov/rules/other.shtml>

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

Re: Exchange-Traded Products, Release No. 34-75165; File No. S7-11-15

Dear Mr. Fields:

This letter responds to the request of the Securities and Exchange Commission (the “Commission”) for comment on topics related to the listing and trading of exchange-traded products (“ETPs”) on national securities exchanges and other matters discussed by the Commission in the above-referenced release (the “Release”). BlackRock, Inc. (together with its affiliates, “BlackRock”)¹ commends the Commission for seeking informed views on ETPs, which as discussed in the Release have become an increasingly popular investment option for investors and a key component of U.S. stock markets.² BlackRock believes that well-structured ETPs can be highly beneficial both to investors and securities markets, but that – given the breadth of products referred to as ETPs – certain types of ETPs raise issues that deserve further consideration by the Commission.

Our comments first seek to explain the ETP “arbitrage mechanism” that, as described in the Release, the Commission believes helps to keep the market price of ETP shares near the fair value per share of the ETP. Based on our understanding of the arbitrage mechanism, we examine (a) the implications for how the liquidity of holdings of exchange-traded funds (“ETFs”) affects the trading of their shares, and (b) why certain ETFs and other ETPs do not have a fully effective arbitrage mechanism, and therefore should be distinguished from ETFs that do. This leads to a discussion of ETP naming conventions, and why the Commission should consider a systematic classification and labelling scheme that better distinguishes the different types of ETPs, and their highly varied structural risks, for investors. We follow with a discussion of premiums and discounts, including our views regarding why well-structured ETPs can experience discounts and why that does not raise concerns. We conclude with a final section briefly addressing a few other questions raised by the Commission in the Release, including the reasons why ETF shares outstanding always equals the amount of underlying assets, suspensions of creations, ETP fund closures, potential improvement to the ETP listing process and the likely future growth of ETPs.

¹ BlackRock and its affiliated investment management companies are collectively a leading global investment manager and a prominent provider of indexing strategies. BlackRock is the investment adviser to the iShares family of exchange-traded funds (“ETFs”), which invest in U.S. equity, international equity, commodities and a variety of fixed-income segments. BlackRock also advises non-U.S. ETFs. BlackRock and its predecessor companies have provided investment advice to ETFs since 1996.

² See Release at 4-5.

I. The Arbitrage Mechanism

While not an explicit requirement of any Commission regulation, the assumption underlying much of the relief granted by the Commission and its staff with respect to ETPs³ presumes that ETP shares should trade at secondary market prices which approximate the fair value of those shares and that, as the Commission has stated with respect to ETFs, “[t]he ability of financial institutions to purchase and redeem creation units at each day’s [net asset value, or NAV] creates arbitrage opportunities that may help keep the market price of ETF shares near the NAV per share of the ETF.”⁴ The so-called “arbitrage mechanism” – the incentive for large financial institutions to buy ETP shares when those shares trade at a discount to the ETP’s intrinsic value and to sell ETP shares when those shares trade at a premium to an ETP’s intrinsic value – is indeed critical to understanding ETPs. It is conceptually similar to the “simplified example” of riskless arbitrage described in the Release,⁵ but differs in that arbitrage trading of ETPs is typically not “riskless arbitrage”⁶ and in some respects resembles normal stock market making.

A. *The Three Types of Publicly-Offered U.S. Investment Funds Have Different Liquidity Features*

ETFs, traditional open-end funds, and closed-end funds are often referred to collectively. While it is true that they are all governed by the 1940 Act, the three basic types of publicly-offered U.S. investment funds have different mechanisms for providing liquidity to investors and establishing prices at which share transactions occur. In a traditional open-end mutual fund, investors buy new shares and redeem existing shares directly with the fund at a specified time each day at a price determined by the fund that is the fund’s best estimation of net asset value (NAV) per share. As a result, when there is a significant imbalance between buyers and sellers, an open-end mutual fund frequently must purchase or sell fund holdings in response to subscriptions and redemptions. In contrast, a closed-end fund has a fixed number of shares that are listed on a stock exchange. As a result, buying and selling of closed-end fund shares occurs at a market-determined price agreed between investors on the exchange without the closed-end fund’s involvement. Any imbalance between buyers and sellers affects the exchange price, but does not result in purchases or sales of holdings by the closed-end fund. In a closed-end fund, there is no mechanism to reconcile differences between the exchange price and NAV, and exchange prices frequently exhibit premiums and discounts to the value of the fund’s holdings.

ETFs are based on a hybrid approach. Like closed-end funds, ETFs can be bought or sold intraday on the exchange at a market-determined price. Exchange transactions directly between buyers and sellers provide each with liquidity without requiring the ETF to buy or sell

³ As discussed in the Release, ETPs cannot trade on a U.S. exchange unless there are applicable exchange rules that permits listing and trading, which are reviewed by the Commission pursuant to Section 19(b) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”). Similarly, in order to operate as designed most ETPs require relief from Regulation M and other rules under the Exchange Act, and from a number of provisions of the Investment Company Act of 1940, as amended (the “1940 Act”), most of which are granted pursuant to Section 6(c) thereof.

⁴ Exchange-Traded Funds, Release No. IC-28193, File No. S7-07-08.

⁵ Release at page 13.

⁶ Riskless arbitrage typically refers to a risk-free transaction consisting of purchasing an asset at one price and simultaneously selling **that same asset** at a higher price, generating a profit on the difference. See definition of riskless arbitrage, InvestorWords at http://www.investorwords.com/4300/riskless_arbitrage.html. As explained herein, ETF arbitrage often involves hedging positions in ETF shares against a variety of other instruments, often for periods longer than a single trading day, and requires risk taking by market participants.

holdings. Unlike closed-end funds, however, ETFs incorporate a mechanism for keeping the market price within close range of the ETF's NAV by adjusting the supply of available shares based on investor demand. Most ETF investors can trade shares only on the exchange. Nonetheless, a small group of investors, known as Authorized Participants ("APs")⁷, can trade directly with an ETF. APs are sophisticated institutional trading firms that enter into a contract with the ETF specifying rules for creating and redeeming ETF shares. APs are not agents of the ETF – they are not required to create or redeem ETF shares under any circumstances, and only do so when it is in their interest. Some APs act only on their own behalf, while others may act as agents for a variety of clients. When APs create or redeem shares with an ETF, they do so at NAV (like with an open-end mutual fund) but typically transact for large blocks of ETF shares in-kind rather than for cash (unlike with an open-end mutual fund).⁸ Because ETF share creations and redemptions are typically in-kind, which frequently involves complex transfers of thousands of securities, ETFs issue and redeem shares only with APs rather than the general public. APs' ability to purchase new ETF shares, and redeem existing ETF shares, directly with the ETF in-kind has a variety of benefits for all investors, as discussed below.

B. The Roles of Authorized Participants and Traders in the Arbitrage Mechanism

Exchange trading for publicly-traded stocks in the U.S. is facilitated by numerous professional trading firms that supply market liquidity. Some trading firms that act as designated market makers may be obligated to perform this function for a particular security under the rules of an exchange that has listed or admitted the security to unlisted trading privileges. Other trading firms perform this function unofficially, without regularly posting quotations on an exchange, in order to seek trading profits – that is, they buy securities that they perceive to be trading at a price less than that which will be available at a subsequent time, and sell securities they perceive to be trading at a price higher than that which will be available at a subsequent time.⁹ BlackRock understands that many professional trading firms buy and sell securities to exploit perceived opportunities created by short-term imbalances of supply and demand, and not necessarily based on any assessment of the securities' underlying worth. To the extent that such professional trading firms assume a risk of being "long" or "short" a stock through such trading activity, they may seek to hedge the risk wholly or partly by simultaneously taking an opposite position in a correlated asset, such as a basket of other securities, an ETF, a futures contract or other derivative based on a broad-based index, or by netting the exposure against other, offsetting trading positions. It is our understanding that professional trading firms typically adjust their trading and hedging positions continuously throughout the trading day in response to trading opportunities, transactions with customers, market volatility or other factors. This normal secondary market trading activity by professional trading firms occurs with respect to ETF shares and, more generally, other ETP shares as well.

When sellers of ETP shares exceed buyers, the price of the ETP shares on the exchange declines, just as you would see with the share price of other equity securities. One

⁷ An Authorized Participant is a professional trading firm that for its own reasons chooses to settle purchase and redemption transactions in large blocks of ETF shares (for its own account or for customers) directly with the ETF rather than through another professional trading firm. APs may be designated market makers, off-exchange liquidity providers, large broker-dealers who trade with or act for institutional clients or specialized computer-based trading firms that trade in large volumes and prefer to clear their own transactions. An AP must be a broker-dealer that has access to institutional clearing systems, such as The Depository Trust Company, used to settle ETF share transactions. The relationship between an ETF governed by the 1940 Act and an AP must be consistent with the 1940 Act and exemptive relief issued by the Commission thereunder. Importantly, other ETPs are not subject to analogous regulation.

⁸ ETFs may substitute cash for in-kind holdings. See discussion regarding the use of cash at page 7.

⁹ Such firms may be large off-exchange market makers, firms that specialize in electronic trading, hedge funds or others.

significant difference between the shares of ETFs and operating companies, however, is that the value of most ETF shares (but not all ETP shares) can be readily compared to the value of the ETF's holdings. The vast majority of ETFs have several features that are collectively referred to as ETF "transparency". ETFs governed by the 1940 Act,¹⁰ and many other ETFs, provide transparency through daily disclosure of portfolio holdings,¹¹ either through (a) publication of the entire portfolio, (b) dissemination to APs of a Portfolio Deposit/Redemption basket (the "ETF In Kind Basket"), a list of securities published by an ETF for which the ETF stands ready to exchange its shares in share creation or redemption transactions and that is representative of the entire portfolio, or (c) both.¹² When the exchange price of an ETF's shares deviates from the current value of the ETF's underlying holdings, it can be perceived swiftly by market participants. ETF transparency allows professional trading firms easily to detect the existence and estimate the extent of any discrepancy between the intrinsic value of an ETF's portfolio and the current exchange price of the ETF's shares.

When a discrepancy becomes sufficiently large, traders take advantage by *opposing* the market trend through exchange transactions – ETF shares must be purchased when trading at a discount, and sold short when trading at a premium. This process causes traders to supply liquidity on the exchange when supply and demand imbalances occur. We understand most professional traders frequently choose to hedge trades in ETF shares through offsetting positions, rather than take unhedged risk.¹³ Resulting trading positions in ETF shares are closed out, and profits (or losses¹⁴) realized, through (a) subsequent exchange transactions, if the price discrepancy between the ETF shares and the intrinsic value of the ETF's underlying portfolio narrows or reverses, or (b) redeeming any ETF shares purchased at a discount for the ETF In Kind Basket, which is then sold to realize the price difference, or delivering the ETF In Kind Basket to the ETF to create new shares which can be delivered to close out short positions

¹⁰ We do not regard "exchange traded managed funds" (ETMFs), which have been granted exemptive relief under the 1940 Act by the Commission but do not yet exist in the market, as ETFs. ETMFs, if they launch, will not be required to be fully transparent, but have few of the structural features and benefits of ETFs.

¹¹ While portfolio transparency is the simplest means of permitting professional trading firms to compare the value of an ETF's portfolio relative to the ETF's current share price, BlackRock believes that full disclosure of portfolio holdings is not a necessary condition for an ETF to trade at exchange prices that closely reflect underlying portfolio value. The ETF "arbitrage mechanism" can be achieved by any arrangement that permits market participants to assess an ETF's underlying value reasonably accurately, and to hedge trading exposures to the ETF's shares, throughout the trading day.

¹² ETFs also typically publish the prior day's NAV. Pursuant to exchange rules and, in the case of ETFs governed by the 1940 Act, Commission exemptive relief, most ETPs also publish during U.S. market hours an estimated current (intraday) valuation (typically referred to as the "IIV", "INAV" or "IOPV") that, for ETFs, is based on the most recent reported transactions of holdings.

¹³ Portfolio transparency permits professional trading firms to judge the risks of being long or short ETF shares, and to hedge such risks, more simply than they are able to do with other stocks. Because professional trading firms know what is in the entire portfolio or ETF In Kind Basket, they can, if they choose to do so, hedge their risk of being long or short ETF shares throughout the trading day very specifically by taking offsetting positions in the ETF In Kind Basket (that is, for example, shorting ETF shares in response to customer orders for such shares while simultaneously purchasing the ETF In Kind Basket to hedge the short exposure). A simultaneous, specific hedge using the ETF In Kind Basket is essentially a riskless arbitrage. BlackRock understands, however, that most professional trading firms do not consistently choose to hedge the risk of being long or short ETF shares by entering into simultaneous transactions in the ETF In Kind Basket. Rather, in BlackRock's experience professional trading firms, including many Authorized Participants, hedge their trading exposure to ETF shares by taking offsetting, correlated positions in derivative instruments, which are often considerably easier to trade quickly than the ETF In Kind Basket. Many market participants treat ETF trading positions as part of a global trading book, and offset long or short trading exposures to ETFs against aggregated exposures to correlated futures, swaps, structured notes or securities incurred through other parts of their trading business. Because professional trading firms can calculate and monitor the correlation risk of such hedges, they are frequently comfortable maintaining hedged long or short positions in an ETF's shares for time periods longer than a single trading day.

¹⁴ ETF arbitrage involves risk taking. We understand there are circumstances when a market maker quotes a price for ETF shares and is unable to establish a hedge at the price anticipated, leading to losses.

taken while the ETF's shares traded at a premium. Only APs and investors that have the ability to trade with or through APs can take advantage of the second option.

This so-called "arbitrage" trading has the beneficial effect of causing APs to create or redeem ETF shares in a manner that adjusts the supply of outstanding ETF shares to match market demand, resulting in the ETF's share price on the exchange remaining highly aligned with the value of the ETF's underlying holdings. Arbitrage trading permits ETFs to have the best features of both closed-end and open-end funds. Like closed-end funds, much of the demand to buy and sell ETF shares can be satisfied by exchange transactions, with any oversupply of shares for sale on the exchange resulting in decreasing the exchange price. In the event the supply and demand for an ETF's shares on the exchange does not balance at a price that reflects the value of the ETF's holdings, however, arbitrage trading will result in APs adjusting the supply of outstanding shares.

C. Necessary Conditions for an Effective Arbitrage Mechanism

As indicated above, an effective arbitrage mechanism requires the combination of several distinct factors. BlackRock groups these factors into two broad categories, which we refer to as "valuation clarity" and "access".

"Valuation clarity" relates to the market's ability to value ETP shares, and encompasses those ETP factors that permit market participants to assess an ETP's fundamental value easily throughout the trading day, which is necessary for market participants to be able to take quick advantage of discrepancies between fundamental value and the exchange price. The important features of valuation clarity are:

- The ETP's shares are backed by a portfolio of assets
- The current intrinsic value of the ETP's portfolio can be determined straightforwardly, without substantial uncertainty within an acceptable range
- The current intrinsic value of the ETP's portfolio can be estimated accurately intraday, as the ETP's shares change price on the exchange; transparency of holdings and intraday indicative valuations are helpful means that facilitate market participants' ability to make accurate intraday valuation estimates¹⁵

"Access" relates to market participants' ability to provide liquidity through arbitrage trading when discrepancies between an ETP's intrinsic underlying portfolio value and the price of the ETP's shares on the exchange occur. Access encompasses two related but different concepts, which can be thought of as "creation access" and "secondary liquidity access". "Creation access" refers to the level of ease with which APs' are able to exchange, with an ETP, the ETP's shares for the ETP's ETF In Kind Basket, or *vice versa*. The most important element of creation access is:

- APs (or other market participants seeking to act through an AP) should have the ability to locate assets required to be delivered in-kind; if APs are unable to locate assets included in an ETF In Kind Basket, creations of new ETP shares will not occur readily, which makes it more difficult for the market to adjust the supply of outstanding ETP shares to match increasing demand for the shares

¹⁵ It is our understanding that most APs, designated market makers and other sophisticated market participants do not rely on intraday indicative valuations disseminated by exchanges, preferring instead to use ETPs' transparency of holdings to create their own intraday valuation models.

“Secondary liquidity access” refers to market participants’ ability to supply liquidity to the secondary market by buying ETP shares trading at a discount, or selling short ETP shares trading at a premium, without undue risk. The critical components of secondary liquidity access are:

- Market participants are able to construct an effective hedge that offsets the risks of being long or short an ETP’s shares;¹⁶ if market makers and other market participants are unable to hedge a trading position in an ETP’s shares, they will not commit capital to promote market liquidity in such shares
- Market participants are able to create or redeem ETP shares *in-kind* (or for cash using terms designed to replicate the economics of an in-kind transaction synthetically)¹⁷ through an AP at the end of each trading day, which makes it relatively simple to close out and unwind a hedged long or short position in ETF shares when the market participant seeks to do so;¹⁸ a professional trading firm’s ability to get out of a position relatively easily, at fair value, reduces the risk of establishing the position in the first place
- Market participants have certainty that they can buy or sell ETP shares and any associated hedges in the market when they choose to do so, and that both sides of a hedged transaction can be created and exited concurrently (or within acceptable risk parameters) without creating exposure to unwanted unhedged market risk

BlackRock believes that if valuation clarity and access are present, natural market mechanics will result in efficient exchange trading for ETP shares. Several types of ETPs, however, lack essential elements of valuation clarity and/or access. For example, exchange-traded notes (“ETNs”) are, in most cases, not backed by a portfolio of transparent assets. The

¹⁶ It is not necessary that an ETP’s shares and its underlying holdings trade concurrently. While it is true that if the ETP’s shares and its underlying holdings do not trade concurrently market participants are unable to effect immediate direct riskless arbitrages, it is BlackRock’s experience that sophisticated trading firms have little difficulty maintaining a well-functioning arbitrage mechanism so long as such firms can enter into effective hedges during the trading hours for an ETF’s shares. For example, in the case of a U.S. ETF that is designed to track an index of stocks from a single Asian country, there may be no overlap between the times the U.S. ETF trades and the underlying stocks trade. In such cases, we understand that sophisticated firms buy the U.S. ETF’s shares when they perceive the shares to be trading below fundamental value, and sell the U.S. ETF’s shares when they perceive the shares to be trading above fundamental value, and hedge risk using futures, swaps, ADRs, other ETFs, closed-end funds or other correlated instruments that trade during U.S. hours, or hold the positions hedged against offsetting risks on the firm’s books.

¹⁷ ETFs may substitute cash under circumstances where their holdings cannot be transferred in-kind, which may result from non-U.S. legal restrictions (e.g., settlement practices to maintain and monitor foreign ownership limits in restricted markets) or from the nature of the asset. ETFs may also allow APs to substitute cash when an AP cannot deliver a specific component of the ETF In Kind Basket for legal reasons (e.g., a restriction from trading due to an investment banking relationship between the AP and the issuer of a security), or because the AP cannot locate that ETF In Kind Basket component in the market. When cash substitutions occur as the result of practical limitations, ETFs may employ a variety of transfer charges or other mechanisms such that transfers for cash resemble synthetic in-kind transfers to the extent allowed. Synthetic in-kind transfers require APs to bear any adverse price movement of assets bought with or sold for cash away from the valuations used by the ETF to calculate NAV, but Commission-imposed limits on redemption fees and various other restrictions under the 1940 Act may make synthetic in-kind transfers impracticable with respect to certain types of assets. When wholesale cash substitutions are not designed to resemble synthetic in-kind transfers, however, the ETF arbitrage mechanism may exhibit flaws under stress, as discussed herein.

¹⁸ In the case of a long position in ETF shares, the position is unwound through a redemption transaction in which the ETF shares are delivered back to the ETF for the ETF In Kind Basket, which (together with any offsetting position in correlated instruments that the trading firm used to hedge its long position in ETF shares) can then be sold. In the case of a short position in ETF shares, the position is unwound through a creation transaction in which the ETF In Kind Basket (which is either already held as a hedge against the short position in ETF shares, or is acquired with the proceeds of the liquidation of a hedge constructed from correlated instruments) is delivered to the ETF in exchange for ETF shares, which are then delivered in settlement of the short position.

value of an ETN is, instead, typically based on a formula that is part of the term of the note, which converts changes in the value of a reference index into increases or decreases in the redemption and/or maturity value of the note. While the current fundamental value of the ETN can be readily calculated in many cases, in other cases the formula may embed non-linear elements (such as caps or knock-out options) that may make accurate valuation difficult without a sophisticated understanding of the note's terms. Further, most ETNs do not have an in-kind creation or redemption feature, and the "arbitrage mechanism" relies on the issuer to buy or sell more notes for cash at a formula-derived value. While the price at which ETNs are bought or sold by the issuer may be predictable by those that fully comprehend the formula, the ETN issuer normally may suspend additional issuance or repurchases at its discretion, which can result in ETNs trading at extreme premiums or discounts to fundamental value.¹⁹ Thus, ETNs typically will lack both valuation clarity and access.

ETFs that hold assets which are not publicly-traded, and do not settle in a manner that typically allows for in-kind transfers, present different, more subtle, concerns. Bank loan ETFs²⁰ and active ETFs or leveraged/inverse ETFs that have substantial weightings in swaps that are not centrally cleared are examples. Because such assets generally cannot be transferred easily in-kind, ETFs that hold portfolios of such assets normally create and redeem shares solely for cash. While the use of cash in creations and redemptions is both necessary and appropriate in many circumstances,²¹ the creation or redemption will not resemble an in-kind transaction and will shift risk to the ETF unless the AP bears the risk that the price of any assets bought with the cash, or sold to raise the cash, will differ from the valuation of those assets used to determine the NAV for the creation or redemption. Such risk shifting not only subjects ETF shareholders to potential dilution,²² it also changes the nature of ETF arbitrage – rather than determining when the value of an ETF's shares are contemporaneously trading away from the *currently realizable* value of the ETF's holdings, the AP must buy or sell ETF shares against a projected future NAV determined using valuation estimates that may be stale or subsequently prove to be off levels at which actual trades occur.²³ While this dynamic is normally not a significant

¹⁹ See Matt Robinson, Bloomberg, *JPMorgan's Cap on Largest US ETN May Cause Premiums*, (Jun. 21, 2012), available at <http://www.bloomberg.com/news/2012-06-18/jpmorgan-s-size-cap-on-largest-u-s-etn-may-cause-price-premiums.html>; John Spence, ETF Trends, *ETFs Trading at Big Premiums and Discounts* (Mar. 27, 2012), available at <http://www.ettrends.com/2012/03/etfs-trading-at-big-premiums-and-discounts/>; and Tom Lydon, Yahoo Finance, *Focus Turns to Natural Gas ETN Premium After TVIX Crash*, (Mar. 23, 2012), available at <http://finance.yahoo.com/news/focus-turns-natural-gas-etn-152723751.html>.

²⁰ Bank loans are contractual obligations between a bank syndicate and a borrower, and typically require members of the bank syndicate to meet certain conditions and bear obligations under the terms of the loan. Accordingly, interests in bank loans typically require affirmative consent from the syndicate, acting through the lead bank, prior to transfer, and settlement of assignments can therefore take up to several weeks (depending on the process and priorities of the bank leading the syndicate). Given that bank loan assignments among sophisticated institutions have evolved to become relatively routine, BlackRock believes that a shorter, more fully standardized assignment settlement process would benefit market participants and mitigate settlement risks.

²¹ See footnote 17.

²² If NAV is potentially higher than the currently realizable value of the assets of an ETF that redeems for cash, market participants' would profit from buying ETF shares trading at a discount to NAV on the exchange and redeeming for an amount of cash (NAV) higher than the ETF can realize by selling its assets, which puts the ETF at risk of dilution. In the case of an *in-kind* redemption under the same circumstances, the AP (or another market participant redeeming through an AP) would bear the risk that the redeemed assets might realize less than NAV upon sale (but would not care so long as the redeemed assets could realize more than the market price for the ETF's shares).

²³ As discussed in greater detail in Section III.A, ETFs that create or redeem shares in-kind may also determine NAV using valuation estimates for underlying assets that are stale or subsequently prove off-market. When ETF shares are created and redeemed in-kind, however, the valuation of assets used to determine NAV has substantially less significance. For example, imagine ETF X publishes to the market that it will create or redeem blocks of 100,000 ETF X shares for 1000 shares of Stock A, 2000 shares of Stock B and 3000 shares of Stock C. This transaction will look the same, and be no more or less lucrative to APs, whether Stocks A, B and C each are valued by ETF X at \$10 or \$1000, because in either case the AP has to buy or sell Stocks A, B and C at market prices and buys (in a creation) or sells (in a redemption) the same proportionate interest in ETF X represented by 100,000 shares. When ETF creations and redemptions are in-kind (or for cash structured in a manner that the

problem, in stressed markets – when the real-time price for current liquidity potentially can deviate substantially from estimates of current value used to determine NAV – ETFs with poorly structured creation and redemption processes may experience issues not presented by ETFs that appropriately externalize liquidity costs to APs through in-kind transactions.

Secondary liquidity access may also be compromised by market structure and regulatory issues. For example, in very volatile markets we understand some market makers may cease providing liquidity for ETF shares based on a concern that hedge transactions could be cancelled as a consequence of exchange trade error cancellation rules being applied, resulting in larger-than-usual premiums or discounts.²⁴ This phenomena would be temporary and would dissipate as volatility eases and normally-functioning arbitrage returns. Exchanges and regulators could address this through rules that would give market makers greater comfort both sides of a hedged ETF trade would be respected in volatile markets.

D. The Effect of Portfolio Liquidity on ETF Share Prices

The implication of the foregoing is that, if valuation clarity and access are present, an ETF may hold relatively less liquid assets in its portfolio. BlackRock believes there is ample experience that demonstrates the shares of ETFs that hold relatively less liquid securities trade effectively.²⁵ Holding relatively less liquid assets will have a negative effect on the trading of an ETF only under extreme circumstances where (a) the current value of the assets cannot be easily determined by market participants because there is no market (lack of valuation clarity), (b) the assets trade so infrequently that they cannot be located for purchase by APs seeking to create ETF shares (lack of creation access) or (c) the assets are so esoteric or idiosyncratic that they cannot be hedged effectively (lack of liquidity access). BlackRock believes nearly all publicly-traded securities are sufficiently liquid, including municipal bonds, high yield bonds, emerging market bonds and stocks in frontier markets.²⁶

While BlackRock believes the liquidity of portfolio holdings has relatively minor effects on the premium/discount of exchange prices relative to fair value, BlackRock also believes the

AP is charged the full costs of buying or selling assets associated with the cash, including any adverse market movement of assets away from the valuations used to calculate NAV all liquidity costs are externalized from the ETF to the AP and the creation or redemption cannot result in material dilution to the ETF.

²⁴ BlackRock, *ViewPoint, Exchange Traded Products: Overview, Benefits and Myths* (Jun. 2013), available at <http://www.blackrock.com/corporate/en-us/literature/whitepaper/viewpoint-etps-overview-benefits-myths-062013.pdf> (“2013 Exchange Traded Products *ViewPoint*”).

²⁵ ETFs that hold less liquid or thinly traded securities trade much like ETFs based on traditionally more liquid asset classes. For example, compare the premium/discount history of the iShares Russell 1000 Index Fund (<http://www.ishares.com/us/products/239707/ishares-russell-1000-etf>), which includes relatively actively-traded large-capitalization stocks, with that of the iShares Russell Microcap Index Fund (<http://www.ishares.com/us/products/239716/ishares-microcap-etf>), which includes relatively thinly-traded small-capitalization stocks that represent less than 3% of the market capitalization of U.S. equity securities. For a comparison involving ETFs that hold fixed-income securities, compare the iShares S&P National Municipal Bond Fund (<http://www.ishares.com/us/products/239766/MUB?referrer=tickerSearch>), which invests in municipal bonds (which, as an asset class, has traditionally been characterized as less liquid and difficult to trade) with the iShares 7-10 Year Treasury Bond Fund (<http://www.ishares.com/us/products/239456/IEF?referrer=tickerSearch>), which holds a portfolio of liquid Treasury bonds.

²⁶ See iShares National AMT-Free Muni Bond ETF (MUB), at <http://www.ishares.com/us/products/239766/MUB?referrer=tickerSearch>; iShares iBoxx \$ High Yield Corporate Bond ETF (HYG), at <http://www.ishares.com/us/products/239565/HYG?referrer=tickerSearch>; iShares J.P. Morgan USD Emerging Markets Bond ETF (EMB), at <http://www.ishares.com/us/products/239572/EMB?referrer=tickerSearch>; iShares Emerging Markets Local Currency Bond ETF (LEMB), at <http://www.ishares.com/us/products/239528/LEMB?referrer=tickerSearch>; and iShares MSCI Frontier 100 ETF (FM), at <http://www.ishares.com/us/products/239649/FM?referrer=tickerSearch>. FM tends to trade at a small premium, which signals that creation access may be challenging but is available.

liquidity of portfolio holdings does affect the spread²⁷ at which market makers will trade an ETF's shares. The aggregate spreads of the underlying portfolio securities of an ETF influence the spread of quotations for exchange transactions of a new ETF's shares. This is because quotations by market makers for shares of a new ETF *initially* are based on their cost to create new shares²⁸ (which would be accomplished by buying and delivering the ETF In Kind Basket), or to short ETF shares (which would be hedged by buying the ETF In Kind Basket or a correlated equivalent instrument), in order to satisfy buying demand.²⁹ So long as the spread (*i.e.*, the cost of buying or selling) of a new ETF's shares is no greater than the spread of the ETF In Kind Basket, ETF shareholders receive exposure to the ETF's underlying portfolio at fair cost.

In many cases, however, over time the spread of an ETF's shares becomes less – often dramatically less – than the spread of the ETF In Kind Basket. The listing of an index-tracking ETF on an exchange, with continuous trading and centrally-reported quotations, enables buyers and sellers of exposure to an asset class represented by the ETF's index to find each other, and match off, more readily than they can by seeking to trade underlying holdings in more fragmented over-the-counter markets. This matching process builds slowly and incrementally as more buyers and sellers use the ETF as an efficient means to trade exposure. This natural market process often eventually leads to significant amounts of trading in ETF shares without any corresponding need for creations and redemptions,³⁰ resulting in exchange volume greatly in excess of the amount of trading in the ETF In Kind Basket.³¹ Matching orders to buy ETF shares with orders to sell ETF shares, without having to hedge positions in those shares or to create/redeem, reduces transaction costs for market makers. Normal competition among market makers ultimately converts these reduced costs into narrower spreads and incremental liquidity (relative to the ETF In Kind Basket) for ETF shareholders.³² **For this reason – access to the underlying exposure at substantially reduced transaction costs to acquiring that exposure directly – ETFs holding relatively less liquid portfolio securities often offer a compelling benefit to shareholders.**³³

²⁷ The difference between the current highest bid to purchase an asset and the current lowest offer to sell an asset. Lower spreads are associated with greater liquidity brought about from more competition among buyers and sellers, and result in lower transaction costs for investors.

²⁸ In addition to the aggregate spread of the ETF In Kind Basket, other costs to create ETF shares (such as stamp taxes or local exchange fees) will also be reflected in the spread of the exchange price of the ETF's shares.

²⁹ The same effect happens, with the opposite trades, in response to selling demand.

³⁰ "The total volume of [trading in the shares of high yield bond] ETFs has grown nearly seven-fold since 2009 . . . While the 'net' portion of the volume must be satisfied by share creation or destruction (which leads to buying and selling of the underlying corporate bonds), the remaining share captures risk transfer that takes place without tapping into the corporate bond market. [Data] shows that the 'net' portion of the volume . . . has declined meaningfully over the past few years. This suggests ETFs are additive to liquidity, allowing [investors] to manage daily liquidity requirements while circumventing the underlying bond markets where liquidity remains poor." Barclays Research, *Deep Dive into the Bond ETF Debate* (Jul. 17, 2015) at 16.

³¹ Average daily aggregate creations and redemptions for all U.S. bond ETFs governed by the 1940 Act involve less than 0.34 percent of aggregate bond ETF total net assets. See Antoniewicz, Rochelle and Jane Heinrichs, 2014. Investment Company Institute, *Understanding Exchange-Traded Funds: How ETFs Work*, ICI Research Perspective 20 (September), available at www.ici.org/pdf/per20-05.pdf. See also Barclays Research, *Deep Dive into the Bond ETF Debate* (Jul. 17, 2015); and Exhibits 1 and 2.

³² For example, since the inception of the iShares MSCI Emerging Markets Fund in 2003 the spread of the ETF shares steadily declined from \$0.25 in 2003, \$0.16 in 2004, \$0.12 in 2005, \$0.03 in 2006 to \$0.01 in 2007. The spread has remained \$0.01 since 2007 (which equals transaction costs of between 0.021% and 0.028%). Likewise, since the inception of the iShares iBoxx \$ High Yield Corporate Bond ETF in April 2007 the spread declined from \$0.04 in 2009 to \$0.02 in 2010 to \$0.01 in 2012. The spread has remained \$0.01 since 2012 (which equals transaction costs of 0.01%).

³³ See Exhibit 3.

II. The Need for Improvements in ETP Classification

While all ETPs share certain characteristics, including exchange-tradability, “ETF” has become a blanket term describing many products that have a wide range of different structures, which has led to a great deal of confusion. Not only are ETFs different from other types of ETPs, the various types of ETPs have different structural risks that are masked by use of a common descriptor. Agreement on a common language would improve investors’ ability to understand and analyze the risks of individual ETPs.³⁴ The ETP industry today, both in the U.S. and globally, is not doing a sufficient job in explaining the structural risk differences among ETPs consistently.

Naming conventions are quite important, especially in a regulatory context. The Commission itself implicitly recognized this in the Release, which divides ETPs into three types for purposes of discussion.³⁵ The Commission’s three types of ETPs are ETFs, ETNs and “non-1940 Act Pooled Investment Vehicles”. We largely agree with the Commission’s typology, but recommend that the Commission label ETPs using risk-based categorization rather than legal distinctions that may not be widely understood. In 2011 BlackRock introduced an Exchange Traded Product Classification system³⁶ that we recently revised in our response to a Financial Stability Board (FSB) consultation.³⁷ BlackRock’s system is similar to the Commission’s but is based on risk-based distinctions and has four sub-types of ETPs.

³⁴ It is frequently difficult for investors to compare even structurally similar ETPs. For example, various market data services, electronic trading systems, broker-dealers and sponsors of fixed-income ETFs have historically each reported basic metrics such as yield, spread and duration using their own proprietary calculations. This has made it difficult to compare fixed income ETFs to other fixed-income investments, as well as to each other. A number of leading market participants have recently come together to promote a common reporting standard. See Alastair Marsh, *BlackRock, State Street Seeking ETF Standards for Trading Boost*, Bloomberg (Jul. 27, 2015), available at <http://www.bloomberg.com/news/articles/2015-07-27/blackrock-state-street-seeking-etf-standards-for-trading-boost>.

³⁵ Release at pages 6-9.

³⁶ Hearing on Market Microstructure: Examination Of Exchange-Traded Funds Before the Committee On Banking, Housing, And Urban Affairs Subcommittee On Securities, Insurance, And Investment 112th Cong., (2011) (statement of Noel Archard, CFA, BlackRock, Inc., Managing Director, Head U.S. iShares Product), available at http://www.banking.senate.gov/public/index.cfm?FuseAction=Files.View&FileStore_id=8e26e5d6-2f02-4ca5-9698-dfb66228d9af (“Archard Testimony”).

³⁷ BlackRock, Comment Letter, Assessment Methodologies for Identifying Non-Bank Non-Insurer Global Systemically Important Financial Institutions, Second Consultation - FSB-IOSCO (May 2015), available at <http://www.blackrock.com/corporate/en-us/literature/publication/2nd-nbni-qsifi-fsb-iosco-052915.pdf>.

BlackRock's Recommended Classifications for ETPs

ETP	Exchange Traded Product	<ul style="list-style-type: none"> • Catch-all term for any portfolio exposure product that trades on an exchange. • ETFs, ETCs, ETNs, and ETIs, are all subsets of ETP.
ETF	Exchange Traded Fund	<ul style="list-style-type: none"> • ETFs are publicly-offered investment funds that trade on an exchange. • ETFs can be passive (tracking a specific index) or active (via a transparent basket) that meet diversification and liquidity thresholds set by regulators and exchanges. • ETFs' underlying securities can include stocks, bonds or other investment instruments (e.g., bank loans) • As noted below, this category should exclude funds with embedded leverage or inverse features
ETN	Exchange Traded Note	<ul style="list-style-type: none"> • Debt instruments that provide an index-based return. ETNs may or may not be collateralized, but depend on the issuer's solvency and willingness to buy and sell securities to deliver fully to expectations. • As noted below, this category should exclude notes with embedded leverage, inverse features or options
ETC	Exchange Traded Commodity	<ul style="list-style-type: none"> • A variety of fully-collateralized legal structures that are not ETNs but seek to deliver the unleveraged performance of a commodity, or basket of commodities. • Some ETCs may hold physical commodities, while others invest in commodity futures. • ETCs that invest in commodity futures may raise special issues because futures do not precisely track spot commodity prices.
ETI	Exchange Traded Instrument	<ul style="list-style-type: none"> • An ETI is any ETP that has embedded structural features designed to deliver performance that will not track the full unlevered positive return of the underlying index or exposure (that is, products that seek to provide a leveraged or inverse return, a return with caps on upside or downside performance or "knock-out" features).

BlackRock's proposed categories of ETF and ETN largely track the Commission's. BlackRock's proposed category of exchange-traded commodity (ETC) is similar to the Commission's "non-1940 Act Pooled Investment Vehicles" but recognizes that, under U.S. law, such funds typically must be commodity-based³⁸ and either primarily hold tangible commodities, such as silver or gold, or futures contracts (which are typically used to achieve exposure to tangible commodities such as oil that are impractical for an ETP to hold directly). Because commodities are generally considered a separate asset class with distinct risks and benefits, BlackRock submits that more investors will better understand the specific characteristics of this group if such funds are referred to as ETCs.

BlackRock's classification scheme differs from the Commission's in recognizing that some ETPs contain embedded structural features designed to deliver performance that will not track the full unlevered positive return of an underlying index, but to modify the index return in some manner. These structural features are typically leveraged or inverse index performance via swap contracts, but could also include embedded options in ETNs (such as performance floors or caps or so-called "knock-out" features that allow the issuer to require early redemption if certain index levels are achieved). These structural features are associated with a number of risks that are quite different from conventional ETFs that hold unleveraged portfolios of securities. BlackRock believes these risks are sufficiently different from conventional ETFs that it may confuse investors when the risks of "ETFs" or "ETNs" are discussed without differentiating the distinct risks of structured instruments, and that it would help clarify discussion

³⁸ A pooled investment vehicle that holds primarily "securities", as defined in the 1940 Act, must be regulated as an investment company under the 1940 Act. While the Commission interprets the term securities broadly in this context, some investable assets – tangible commodities, futures contracts and bank deposits – are not considered securities, and thus may be held in a "non-1940 Act Pooled Investment Vehicle". Such vehicles overwhelmingly offer commodities exposure to investors, whether in physical form (e.g., iShares Gold and Silver Trusts) or through futures (e.g., iShares S&P GSCI Commodity-Indexed Trust).

if products associated with these specific risks were recognized as a discrete category of ETPs. Because such products may be structured either as funds or notes, BlackRock refers to these products as exchange-traded instruments (ETIs). Funds included in this category are, for the most part, leveraged/inverse funds.

A standard classification system as proposed above would help both policy makers and investors better understand the structure of various ETPs and hone in on where further analysis of issues may be warranted. Exhibit 4 illustrates BlackRock's classification scheme and provides a sense of relative scale in terms of the breakdown of global assets under management in ETPs of \$3 trillion as of June 2015. For example:

- ETFs that have portfolios primarily of non-publicly traded assets (e.g., bank loans) account for only about \$7bn or 0.2% of total assets
- Leveraged ETIs (including inverse and inverse-leveraged ETIs), which currently comprise approximately 1.3 percent of the ETP market, use leverage to magnify returns relative to an index or to produce inverse returns.³⁹ While the risks of these products are still being debated,⁴⁰ we have concerns that leveraged and inverse-levered ETIs create significantly different risks than those presented by traditional ETFs.⁴¹

In summary, a logical classification scheme helps distinguish among different kinds of ETPs. We believe consistent use by the Commission of terms that distinguish the risks of various types of ETPs would lead to better understanding by investors.

III. Premiums, Discounts and Price Discovery

The fact that an ETF's shares may trade at a price higher or lower than the ETF's most recently calculated NAV is sometimes viewed as a failure of ETFs. In this section, we first look at whether NAV is always a good proxy for the intrinsic value of the underlying portfolio of an ETF and next discuss why price deviations occur.

A. When does a Premium or Discount to "Fair Value" Exist?

The relative ease with which ETF shares can be exchanged for the ETF In Kind Basket determines how closely an ETF's share price will track the value of the ETF's underlying portfolio. When this exchange is challenging for APs (due to a difficult ETF In Kind Basket, *i.e.* low creation access), ETFs tend to trade at a small premium to the fair value of the underlying holdings. Exhibit 5 shows premium and discount statistics across fixed income, equity and commodity ETFs from January 1, 2008 through July 21, 2015, a time that includes the worst period of the Financial Crisis. As seen in Exhibit 5, for U.S. ETFs holding U.S. stocks, the ETF price usually tracks the NAV very closely, with an average discount of 0.018% for the period

³⁹ See Minder Cheng and Ananth Madhavan, "The Dynamics of Leveraged and Inverse Exchange-Traded Funds", *Journal of Investment Management* (2009), for an in-depth explanation of the effects of the use of leverage in leveraged/inverse ETFs.

⁴⁰ Ivan Ivanov and Stephen Lenkey, *Are Concerns About Leveraged ETFs Overblown?*, Federal Reserve Board (Nov. 19, 2014), available at <http://www.federalreserve.gov/econresdata/feds/2014/files/2014106pap.pdf>; Tugkan Tuzun, *Are Leveraged and Inverse ETFs the New Portfolio Insurers?*, Federal Reserve Board (Jul. 16, 2013), available at <http://www.federalreserve.gov/pubs/feds/2013/201348/201348pap.pdf>.

⁴¹ 2013 Exchange Traded Products *ViewPoint*.

from January 1, 2005 through December 31, 2014.⁴² The average premium/discount for the SPDR S&P 500 ETF (SPY), the largest ETF holding U.S. large capitalization stocks, was 0.01%, with a standard deviation of only 0.14% (with similar data for the iShares Russell 2000 ETF (IWM), the largest ETF holding U.S. small capitalization stocks). Because U.S. stocks trade at the same time and on the same venue (U.S. stock exchanges) as the ETFs' shares, determining the premium or discount of U.S. ETFs holding U.S. stocks is an "apples-to-apples" comparison.

U.S. ETFs that hold non-U.S. stocks present a more challenging comparison, as the fact that a U.S. ETF's shares may not trade concurrently with its underlying holdings can create timing mismatches between the ETF's determination of NAV (typically as of 4 pm U.S. Eastern time) and the last-reported transactions in non-U.S. markets.⁴³ Despite this, the U.S. closing prices of ETFs holding non-U.S. stocks is a very good predictor of the next day's opening in the relevant non-U.S. markets,⁴⁴ which suggests that U.S. ETF exchange prices can be a good indicator of how news has effected valuations in non-U.S. markets when they are not open for trading.

Comparing the stock price of U.S. fixed income ETFs to the most recently calculated NAV presents similar challenges. Unlike stocks, bonds trade in over-the-counter dealer markets. Fixed income ETFs often track broad bond market benchmarks that include thousands of bonds, many of which trade infrequently.⁴⁵ Obtaining current prices reflecting actual trades for this number of individual bonds is generally not possible, as many of the specific bonds will not have traded on the valuation date. As a result, fixed income ETFs are forced to calculate NAV partly based on estimates of bonds' values produced by models using trades that occurred well before the time of the determination of the NAV or, for bonds that have not traded at all recently, by comparing to bonds with similar characteristics. Such estimates are made with many controls and in good faith, but are necessarily backward-looking and sometimes stale even at the time NAV is calculated. Estimates of value produced by models are inherently less reliable than *currently realizable* prices, particularly in stressed markets. In addition, in over-the-counter dealer markets where assets trade irregularly there may be large spreads between the bid and ask quotations between trades. Like other funds registered under the 1940 Act, fixed income ETFs' NAVs are conventionally calculated using bid prices, whereas bonds may trade at bid, ask or sometimes in between.⁴⁶ These issues may result in fixed income ETF NAVs that may be reasonably close but imperfect estimates of fair value when compared to market prices.

⁴² See Ananth Madhavan and Aleksander Sobczyk, *Price Dynamics and Liquidity of Exchange Traded Funds*, forthcoming, Journal of Investment Management (2015).

⁴³ While timing gaps between an ETF's NAV and its share price may occur, ETFs are typically not subject to the problems of "market timing" NAV arbitrage that occurred with mutual funds in the 1990s because (a) ETF shares are traded on exchanges and, therefore, a transaction by a shareholder seeking to market time could only occur at the market's assessment of the current value of the shares, (b) exchange trades do not involve the movement of assets in or out of an ETF that could affect other shareholders, and (c) in the case of creations or redemptions that do involve the movement of assets in or out of the ETF, the transactions are typically effected through an in-kind exchange of a *pro rata* share of the ETF's holdings. See footnote 23.

⁴⁴ See Ananth Madhavan, *Fair Value Adjusted Indexes – Constructing Better Investor Benchmarks*, Journal of Indexes (Spring 2013). See also Robert Engle and Debojyoti Sarkar, *Premiums-Discounts and Exchange Traded Funds*, The Journal of Derivatives (Summer 2006).

⁴⁵ See Exhibit 6.

⁴⁶ The fact that fixed income ETFs determine NAV using bid prices, while exchange trades in an ETF's shares may occur at the bid or ask quotations or any mutually-agreed price in between, helps to explain why fixed income ETFs tend to trade at small premiums under normal market conditions.

Consequently, premiums and discounts that result from comparing an ETF's most recently calculated NAV to its current exchange price may occur for a variety of reasons, some of which result from real market supply-and-demand forces at work and others which result from timing gaps or other small differences between NAV calculation and exchange pricing. We therefore do not believe that the existence of a small premium or discount is necessarily a meaningful indicator of deviation from fair value.

B. Premiums or Discounts Can Result From Properly-Functioning Price Discovery at Work

During periods of bond market volatility, fixed income ETFs may exhibit larger-than-usual discounts to their most recently calculated NAV. At the height of the Financial Crisis (October-November 2008), several large fixed income ETFs experienced discounts of as much as approximately 8% to 11%.⁴⁷ Many observers – including sophisticated users of fixed-income ETFs – believe such discounts result from “problems” with “the ETF arbitrage mechanism if liquidity in a bond market begins to deteriorate” because “reduced liquidity creates a larger risk for APs who . . . increase[] the spread between the ETF price and NAV.”⁴⁸

This strikes us as, at best, a simplistic and imperfect explanation of why large premiums or discounts can temporarily occur, especially with fixed-income ETFs, when underlying markets are stressed. While some market participants are no doubt more reluctant to take on risk in a stressed market, we believe periods of market stress illustrate how ETFs function as price discovery tools when underlying markets are not trading normally.

The volume of exchange trading in fixed income ETFs tends to spike when markets reprice fixed income assets. For example, during the Financial Crisis, as liquidity in corporate bonds traded over-the-counter deteriorated in June 2008, the iShares iBoxx \$ Investment Grade Corporate Bond ETF (LQD) continuously traded on exchanges in an orderly manner and more than quadrupled volume.⁴⁹ Similarly, the so-called “Taper Tantrum” in the summer of 2013 followed an unexpected announcement by the Federal Reserve that it intended to cut back its ongoing program of repurchasing bonds, sparking widespread fear of rising interest rates. Bond prices fell steeply during June 18-19, followed by a rebound the following week. During the selloff, volume in the iShares iBoxx \$ High Yield Corporate Bond ETF (HYG), the largest U.S. high yield bond ETF, rose to as high as 25% of the underlying high yield bond market.

Discounts widened during these periods. We believe the discount widening results from two separate phenomena:

- *ETFs are priced in real time, NAVs are not.* ETF share prices and NAV incorporate new information differently. ETF shares price on an exchange, where they are set intraday by actual transactions between willing buyers and sellers. They are therefore able to move quickly to incorporate new information and reflect prevailing market conditions. NAV, in contrast, is calculated once daily based on known previous transactions or model-based estimates of fair value, which may be difficult to capture accurately when prices are falling and

⁴⁷ See Exhibit 5.

⁴⁸ Rick Ferri, *Solving the Bond ETF Discount Problem*, Forbes (Jun. 27, 2013), available at <http://www.forbes.com/sites/rickferri/2013/06/27/solving-the-bond-etf-discount-problem/>.

⁴⁹ See Exhibit 7.

bonds are trading infrequently.⁵⁰ **Fixed income ETF NAVs are backward-looking and necessarily adjust to new price information with a lag, whereas fixed income ETF share prices are forward-looking and incorporate new information quickly and dynamically.** In comparisons between ETF closing share prices and NAV on which premium/discount data is based, the ETF closing share price reflects all information then currently known in the aggregate by market participants, while the NAV reflects only the information then currently known (and able to be reflected in valuations) by the persons involved in determining the NAV. Fixed income ETF share prices therefore tend to “lead” other indications of bond values, providing insight into the true level of the market for the underlying securities.⁵¹ By allowing market participants to set a price for a basket of securities, many of which may not be trading, ETFs permit price discovery.

- *Liquidity has a cost.* As discussed earlier, when sellers of shares exceed buyers, the price of the shares on the exchange declines. This is the normal means for balancing supply-and-demand for equities. In stressed bond markets, market participants seeking to reduce bond exposure may seek to sell ETF shares because it is easier, quicker and more certain than seeking to sell large amounts of individual bonds, many of which may have no bids. When selling demand is concentrated in an ETF’s shares, those shares will decline in price to a level that attracts willing buyers. This selling activity may drive the ETF share price to a level below some indications of “fair value”. It nevertheless represents the market’s price for *current liquidity*, as ETF arbitrage requires APs and other market participants to sell bonds or equivalent exposures at *currently realizable* prices in order to hedge risk to any ETF shares purchased. We therefore see reasonable discounts in stressed markets as an indication that the arbitrage mechanism is functioning, not of “deterioration”.

In summary, ETFs provide insight into the prices at which an ETF’s underlying assets can really match willing buyers with willing sellers, and the direction of those prices. This price discovery attribute is an important benefit of ETFs. ETF premiums and discounts typically occur in connection with valid price discovery, and a well-functioning arbitrage mechanism will cause the premium or discount to revert to normal levels when excess demand for shares (premiums) or liquidity (discounts) either is satisfied or dissipates.

⁵⁰ The IIV (or INAV or IOPV), an intraday indication of intrinsic value disseminated through an exchange, is typically also calculated using stale or model-derived values and has similar issues.

⁵¹ This is consistent with findings in academic literature that deviations between an ETF’s secondary market price and its underlying portfolio value often result from price-changing information affecting ETF share prices before it is reflected in the prices of the ETF’s underlying holdings. The deviation then results in the price sensitive information being transmitted to the prices of the ETF’s underlying holdings through the ETF’s arbitrage mechanism, as market professionals buy or sell the underlying holdings (or correlated assets) in response to the changing ETF secondary market price. See Lei Yu, *Basket Securities, Price Formation and Informational Efficiency*, Department of Finance, Mendoza College of Business, University of Notre Dame (Nov. 2003, revised Mar. 25, 2005), available at <https://gates.comm.virginia.edu/uvafinanceseminar/2006-Yu%20paper.pdf> at note 11, as well as other studies cited therein. See also Joel Hasbrouck, *Intraday Price Formation in U.S. Equity Markets*, *The Journal of Finance* (Dec. 2003).

IV. Responses to other Questions Raised in the Release

A. *ETF shares outstanding always equals the amount of underlying assets*⁵²

As discussed earlier in this letter and illustrated in Exhibit 1, the volume of trading in an ETF's shares may greatly exceed the amount of creation/redemption activity in the ETF or the volume of trading in the ETF's underlying holdings. The liquidity of ETF shares on exchanges resulting from matching buyers and sellers is *incremental* to the liquidity in the underlying markets, and significantly benefits investors. The fact that the liquidity of an ETF's *shares* can, under some circumstances, be greater than the liquidity of the ETF's *holdings* has led to confusion. While some commenters mistakenly take the view that the liquidity of ETF shares can never be greater than the liquidity of an ETF's holdings,⁵³ other commenters confuse ETF share exchange trading volume with the amount of ETF shares outstanding and reach the misguided notion that that the amount of shares *trading* equates to the number of shares that could be *redeemed*.⁵⁴ These latter commenters then incorrectly conclude ETFs cannot handle the potential for redemptions. In reality, there is no possibility of any mismatch between an ETF's shares outstanding and the amount of its underlying assets.

The shares of ETFs, like other equities, may be lent to borrowers who then sell the shares short.⁵⁵ The short selling of an ETF can result in an increase in the number of shares that *trade* – the lender of the shares still “owns” the shares beneficially, although the shares have been sold and transferred to another owner who purchased from the short seller. This is no different than other equities, and the securities lending market has evolved rules to make it clear that certain rights are retained by the lender and other rights transfer with the security, so that there is no duplication of ownership rights.

These rules hold true for loans of ETF shares. While short sales may facilitate exchange liquidity and lead to the total number of shares circulating appearing to exceed the number of shares outstanding, only the number of outstanding shares issued by the ETF may be redeemed. This is because ETFs only release redemption proceeds against delivery of actual ETF shares to be redeemed, a practice known as a Delivery vs. Payment (DVP) settlement.⁵⁶ When an owner of ETF shares loans those shares to a short seller, they no longer have possession of the shares and effectively lose the right to redeem until those shares have been recalled from the borrower. Any “redemption” by a party that does not have ETF shares to deliver in settlement (because they have lent them to a short seller or otherwise) will fail. The

⁵² Our comments pertain to ETFs only. Because ETNs are not typically backed by physical assets in any legal sense, the relationship between the amount of an ETN outstanding and related assets, if any, is determined solely by the ETN issuer's hedging program. We understand that ETN issuers usually do not hold hedges with a full notional value equal to the amount of an ETF outstanding.

⁵³ See, e.g., Howard Marks, Memo Re: Liquidity to Oaktree Clients (Mar. 25, 2015), available at <http://www.oaktreecapital.com/memotree/liquidity.pdf>.

⁵⁴ See, e.g., Harold Bradley and Robert E. Litan, *Choking the Recovery: Why New Growth Companies Aren't Going Public and Unrecognized Risk of Future Market Disruptions*, (Nov. 8, 2010), available at http://www.globaleconomicsgroup.com/wp-content/uploads/2012/03/etf_study_11-8-101.pdf.

⁵⁵ The ETF arbitrage mechanism relies on the ability of market participants to short shares when there is high demand to buy relative to shares held long available for sale. The Commission has recognized the importance of short selling to market liquidity. See e.g., Rule 203(b)(2)(ii) (providing an exception from certain short sale requirements for market makers engaged in *bona fide* market making activity).

⁵⁶ Under some circumstances, an ETF may release redemption proceeds against cash collateral rather than delivery of actual ETF shares, in order not to disrupt operation of the settlement system. The cash collateral must always exceed the value of the ETF shares to be delivered to fully settle the redemption, and can be used by the ETF to repurchase assets in the event of ultimate settlement failure by a redeeming AP.

settlement period for a redemption is generally three days. On the third day, ETF shares for which redemption is sought must be delivered before the ETF can release any assets as redemption proceeds. This process ensures that the total net asset value of ETF shares outstanding always equals the net asset value of the ETF's holdings, consistent with the requirements of the 1940 Act.

Notably, a large number of redemptions from persons who have lent shares could potentially cause a "short squeeze" as those person seek shares to deliver to the ETF to settle the redemption (by purchasing ETF shares in the market or recalling loaned ETF shares). In stressed markets with excess selling demand, this would introduce offsetting buying demand. If a "short squeeze" started to increase the price of ETF shares substantially above the intrinsic value of the ETF's portfolio, in all likelihood some of the previous redemptions would fail as redeeming shareholders realized they could not make DVP delivery to settle and the cost of obtaining shares to settle redemptions would be uneconomic. The failure to settle such redemptions would not affect the ETF other than to create accounting entries that are later cancelled. No real costs would be incurred.

To demonstrate that even a large ETF holding less liquid assets can handle substantial redemptions seamlessly, the events surrounding a rebalancing of the Russell indices in July 2007 provides a useful example. The rebalance caused massive redemptions from the iShares Russell 2000 ETF (IWM), which holds small capitalization U.S. stocks and was then (and remains) one of the largest ETFs. The redemptions came from APs that wanted to handle an especially complex set of rebalancing trades themselves rather than rely on the ETF to match the index precisely at moments that created hedge risk for other positions held by the APs. Redemptions from IWM in the week prior to the rebalance essentially equaled the ETF's assets, but were followed by significant creation activity over the few days following the rebalancing's completion. Despite the massive redemptions relative to the ETF's assets, the ETF functioned as usual and both the ETF's shares and the underlying market traded normally throughout the period.

B. Suspension of Creations

ETPs rarely suspend creations, but have occasionally done so under two circumstances: (a) temporary suspensions to comply with legal requirements, and (b) inability to increase exposure to underlying assets as either a hedge (in the case of ETNs) or an investment (in the case of ETFs). The former occurs most frequently with ETFs not governed by the 1940 Act (particularly ETCs), when circumstances require a disclosure update (such as inclusion of new financial statements) that leave the ETF without a currently-effective registration statement for a short period pending review and declaration of effectiveness of a new registration statement by the Commission and by commodities regulators such as the National Futures Association, a self-regulatory association that reviews offering documents for publicly-offered commodity pools. While we do not believe this is a significant issue for markets and only affects a small handful of ETPs, the issue could perhaps be addressed by better synchronization of disclosure rules between the Commission and commodities regulators.

ETNs have suspended new issuances of new notes (the equivalent of a creation) when the issuer has hit a regulatory ceiling that prevents increased ownership of an asset that hedges its exposure under the ETNs – for example, a limit on the number of natural gas futures

contracts that may be owned to hedge exposure under natural gas-linked ETNs.⁵⁷ ETFs could experience similar issues if, for example, a non-U.S. market suspended capital inflows in a manner that prevented U.S. ETFs or APs from acquiring further assets that are a material component of a benchmark index. In these circumstances, the ETN or ETF would trade at a premium until new issuance or creations resume. This is a normal risk, but issuers should carefully consider their disclosure so that investors clearly understand when a premium could disperse.

C. Closure of ETPs

ETPs occasionally close and liquidate under two circumstances: (a) an ETF sponsor or ETN issuer determines to shut a small fund or note that is not attracting investor interest, and (b) an ETN liquidates as the result of its reference index hitting a level that triggers liquidation under the note's terms (a "knock-out" feature). In the former circumstance, the sponsor or issuer notifies investors of the proposed delisting and liquidation in advance, continues to operate through such dates and returns liquidation proceeds to investors shortly after the liquidation date. Such closures of ETFs are not significantly different than mutual fund closures, which occur routinely, and in BlackRock's experience do not raise substantial additional concerns. We therefore do not believe that closure of "ETFs", as defined in our proposed ETP classification scheme discussed previously, present significant issues.

"ETNs" and "ETIs" may be different. Because ETNs are not typically based on a transparent portfolio of assets, establishing the liquidation value of an ETN may raise transparency issues unless the note terms explicitly detail how the liquidation value is determined and what costs are borne by noteholders. Knock-out features also raise unique issues, in that they typically require liquidation of an ETN at a time when the reference index is down substantially and consequently require investors to take losses at the most inopportune time. If appropriately disclosed, such terms are consistent with the risks typically associated with owning a structured investment, but the need for investors to understand this special risk underscores our prior comments that structured investments should be distinguished from "plain vanilla" ETFs.

D. Exchange Listing Standards

The current process for review of exchange listing standards for ETPs, conducted under Commission Rule 19b-4 by the Division of Trading and Markets, has, in our opinion, significant shortcomings. Section 19(b) of Exchange Act requires exchanges to file proposed rule changes with the Commission for review. Rule 19b-4, which implements the statutory requirements of Section 19(b), by its express terms covers rule changes related to "new derivative securities products", such as listed options and warrants. A long-standing Commission interpretation of Rule 19b-4 treats ETPs as equivalent to exchange-traded derivatives (and unlike closed-end funds) for purposes of the rule. In our view, subjecting ETPs to a process designed for listed options and warrants has led to confusion and potential misapplication of Commission resources.⁵⁸

⁵⁷ See John Spence, ETF Trends, *Why the Natural Gas ETN is Trading at a Huge Premium* (Mar. 19, 2012), available at <http://www.etftrends.com/2012/03/why-the-natural-gas-etn-is-trading-at-a-huge-premium/>.

⁵⁸ BlackRock has previously suggested the Commission adopt a more streamlined review process for new ETFs. See Archard Testimony.

Because Rule 19b-4 was not written with ETPs in mind, it has no clear standards or requirements for exchange listings of ETPs.⁵⁹ The absence of clear standards leads to a review process that, in BlackRock's experience, can be opaque.⁶⁰

The review process can focus on issues that, while clearly relevant for exchange-listed options or warrants, have less obvious application to ETFs based on broad-based indexes or to ETFs that are actively-managed but invest in a diversified portfolio of securities the same as or similar to those included in a broad-based index. An example, raised by the Commission itself in the Release, is "manipulation". We understand this to refer to the concern that a security that is an underlying reference asset, index component or portfolio holding could be manipulated to affect the price of an ETP to the detriment of investors, or *vice versa*. This is, no doubt, a valid regular consideration in the case of listed options or perhaps ETPs based on narrow indexes or undiversified portfolios where one or a handful of securities has significant weightings. Many ETFs, however, seek to replicate the performance of indexes comprised of thousands of securities or hold highly diversified active portfolios, with weightings typically no greater than one or two percent.

We have experienced on several occasions over many years that the potential for "manipulation" is primarily of concern to the Commission's staff in connection with actively-managed ETFs that invest in non-U.S. assets and ETFs that invest in municipal bonds. In the case of an actively-managed ETF proposing to invest in non-U.S. assets, the review can develop into an abstruse exercise in counting the number of securities to be included in the proposed ETF's investment universe that have listings in countries that have information-sharing or market surveillance agreements with the U.S. exchange, even though the non-U.S. assets may be exactly the same as those commonly held in existing publicly-offered U.S. funds.⁶¹ In addition, the review process may include a protracted inquiry into the investment quality of underlying securities, unlike the regulatory treatment of other publicly-offered investment funds regulated by the Commission (but not subject to Rule 19b-4).⁶² We respectfully submit that, if potential manipulation of underlying holdings is a focus of the Commission's concern, ETFs that agree to maintain a sufficient level of diversification such that no holding will have a large weighting should qualify for more streamlined review.

Another focus of the review process is frequently whether an ETP, or class of ETPs, that would be covered by a listing rule would trade effectively, which has been interpreted to mean would trade at a level that reflects an ETP's fair value. Thus, regulatory review of ETP listing rules under Rule 19b-4 often revolves around issues related to the arbitrage mechanism. As

⁵⁹ According to the Release at pages 29-30, the applicable standards are set forth in Section 6(b)(5) of the Exchange Act and are: (1) prevention of fraudulent or manipulative acts, (2) promotion of just and equitable principles of trade, (3) fostering cooperation and coordination with persons engaged in securities clearing and settlement, (4) perfection of the mechanism of a free and open market and national market system, and (5) protection of investors and the public interest. While these are laudable goals, their application to proposed ETP listings is nebulous and confusing, and it is therefore difficult to anticipate the staff's specific concerns.

⁶⁰ While several exchanges have adopted, and the SEC has approved, rules permitting such exchanges to list ETFs based on indexes that meet certain criteria (*i.e.* "generic listing standards"), any index-based ETF that does not meet all the criteria in the generic listing standards, and any actively managed ETF, must have a Rule 19b-4 application filed with the SEC on its behalf by a listing exchange and must obtain SEC approval prior to listing on the exchange. This process is cumbersome and time consuming for all parties involved.

⁶¹ These may be mutual funds that do not list their shares on exchanges, closed-end funds not treated as "new derivative securities products" and therefore not subject to listing review under Rule 19b-4, or index-based ETFs able to rely on generic listing standards and therefore not subject to individualized Rule 19b-4 application to obtain listing approval.

⁶² The Commission historically has generally sought to address issues of the investment quality of a fund's holdings through requiring appropriate risk disclosure in the fund's offering documents rather than by limiting the fund's investments or preventing a fund from offering its shares.

discussed in detail elsewhere in this letter, whether an ETP's arbitrage mechanism is well-designed and will function effectively is a complex subject. We have found that the questions raised in the review process often focus on data issues (e.g., the average daily trading volume of underlying securities) rather than the structural features of ETPs we've highlighted previously in this letter and that, in our opinion, have greater relevance.

One reason Rule 19b-4 reviews may seem opaque to ETP issuers like BlackRock is that such issuers – which are, presumably, well-versed in how their products are intended to operate – are not actually parties to Rule 19b-4 proceedings, which relate to exchange rules and are therefore conducted between the Commission staff and the exchange proposing a listing rule for review. While ETP issuers may be included on informal calls with the Commission staff, in BlackRock's experience the Commission staff feels constrained to deal primarily with the listing exchange submitting a proposed rule, and to seek information primarily from the listing exchange. We believe this at best introduces an extra layer of communication that slows responses to the staff's questions, and often introduces confusion over the issues. Exchange employees responsible for rule filings frequently have less expertise in ETP products, or in the underlying investments of an ETP, than ETP issuers.⁶³

BlackRock questions the public policy benefit of the Commission staff's reviews under Rule 19b-4 of proposed exchange listing rules for many individual ETPs, and believes more, or broader, generic listing rules that obviate the need for individual ETP listing reviews, except in the case of truly novel ETPs, would allow the Commission staff to focus its resources more productively. BlackRock also respectfully submits that exchanges, ETP issuers and the Commission staff would all benefit from greater articulation by the Commission of the issues of concern to the Commission in Rule 19b-4 reviews of ETP listing rules and the standards applicable to parties seeking to address those concerns.

E. Growth of ETPs

The Commission notes the tremendous growth in ETPs in recent years, and asks commenters what they believe are the reasons for such growth and whether such growth is likely to continue. As illustrated in Exhibit 3, the growth of ETPs is primarily due to the increasing acceptance of ETFs by investors, while other ETP sub-categories remain relatively small. Some of the reasons cited by investors for their interest in ETFs are:

- ETFs typically have low fees relative to other types of commingled funds
- ETFs have low trading costs
- ETFs can be tax-efficient for small taxable investors (because there is little trading inside the ETF)
- ETFs have a reliable history of trading at market values consistent with the value of their underlying assets
- ETFs can provide diversified, liquid exposure to asset classes that are hard to trade for many investors

⁶³ Exchanges have little economic incentive to build and demonstrate expertise in the ETP listing process, as upon listing approval ETPs typically begin to trade quickly on an unlisted basis on multiple other exchanges (so ETP listings have negligible financial benefits to exchanges).

- By concentrating demand from buyers and sellers of exposure to a particular asset class in a transparent, index-linked instrument that trades continuously with centrally reported-quotations on an exchange, ETFs, ETFs have made trading of certain asset classes less fragmented and producing incremental exchange liquidity (relative to direct trading of the ETF's underlying assets)
- ETFs have functioned well in times of stressed markets, with ETF shares being at least as liquid as underlying portfolio assets and serving as an important vehicle of price discovery.

Even with the recent growth of ETFs, the total assets of U.S. ETFs is only about 12.4% of the total assets of U.S. mutual funds.⁶⁴ In aggregate, equity ETFs are about 3% of the global equity market and fixed income ETFs are just 0.4% of the global bond market (as of 2014). In some major bond market segments, such as U.S. Treasury bonds and corporate bonds, ETFs represent only 0.5% and 1.7%, respectively, of outstanding securities today. These figures suggest significant room for further growth.⁶⁵ In BlackRock's recent Viewpoint,⁶⁶ we recommended a number of regulatory changes that could potentially broaden the universe of ETF investors even further.

As discussed herein, a number of commonly voiced concerns about "ETFs" actually relate to a small subset of other types of ETPs. A systematic classification scheme that helps investors more readily distinguish the risks inherent in different types of ETP structures would benefit investors, as well as help the Commission and its staff focus efforts on genuine challenges.

* * * * *

We thank the Commission for providing BlackRock with the opportunity to comment on the Release, and we are eager to assist the Commission in any way we can to ensure that the Commission's ongoing consideration of ETP issues benefits investors. Please contact the undersigned if you have any questions or comments regarding BlackRock's views.

⁶⁴ According to the Investment Company Institute, as of the end of 2014 U.S. ETF assets were \$1.97 trillion and U.S. mutual fund assets were \$15.9 trillion. Investment Company Institute, 2015 Investment Company Fact Book (2015), available at http://www.icifactbook.org/fb_ch2.html.

⁶⁵ Barclays Research recently suggested that "low double digit growth is a fair expectation moving forward" for ETFs generally, with fixed-income ETFs likely to grow at a faster rate from a smaller base than equity ETFs. Barclays Research, *Deep Dive into the Bond ETF Debate* (Jul. 17 2015).

⁶⁶ BlackRock *Viewpoint, Bond ETFs: Benefits, Challenges and Opportunities* (Jul. 2015), available at <http://www.blackrock.com/corporate/en-us/literature/whitepaper/viewpoint-bond-etfs-benefits-challenges-opportunities-july-2015.pdf>.

Sincerely,

Barbara Novick
Vice Chairman

Ira Shapiro
Managing Director

cc:

The Honorable Mary Jo White
Chairman
Securities and Exchange Commission

The Honorable Luis A. Aguilar
Commissioner
Securities and Exchange Commission

The Honorable Daniel M. Gallagher
Commissioner
Securities and Exchange Commission

The Honorable Michael Piwowar
Commissioner
Securities and Exchange Commission

The Honorable Kara M. Stein
Commissioner
Securities and Exchange Commission

David Grim
Director
Division of Investment Management
Securities and Exchange Commission

**Exhibit 1: Primary and Secondary Activity in US-Domiciled Bond ETFs
January 3, 2013 – June 30, 2014**

Investment objective	Number of ETFs	Total net assets (\$ billions)	Average daily creations/redemptions (\$ millions)	Primary market relative to total net assets (percent)	Average daily volume (\$ millions)	Secondary relative to Primary (ratio)
Domestic	194	254	867	0.34	3,802	4.4
Domestic high-yield	27	46	149	0.32	738	5.0
Municipal	35	13	19	0.15	101	5.3
Other domestic	132	195	698	0.36	2,964	4.2
International	53	19	64	0.33	224	3.5
Emerging Markets	20	11	46	0.42	169	3.7
Other International	33	8	18	0.21	55	3.1
Bond ETFs (Total)	247	273	931	0.34	4,026	4.3

Source: Antoniewicz, Rochelle and Jane Heinrichs, Investment Company Institute, *Understanding Exchange-Traded Funds: How ETFs Work*, ICI Research Perspective 20 (Sep. 2014), available at <https://www.ici.org/pdf/per20-05.pdf>.

Exhibit 2: Primary and Secondary Volumes for Select iShares Bond Funds*

ETF	Ticker	NAV (\$ billions)	Secondary Market Volume (\$ millions)	Secondary vs. Primary Market Ratio
iShares Core US Aggregate Bond	AGG	24	231	6.1
iShares 1-3 Year Treasury Bond	SHY	8	91	2.9
iShares TIPS Bond	TIP	13	80	4.5
iShares Agency Bond	AGZ	0.4	5	2.8
iShares MBS	MBB	7	49	3.7
iShares iBoxx Dollar Investment Grade Corporate Bond	LQD	22	319	4.0
iShares Intermediate Credit Bond	CIU	6	39	2.0
iShares Floating Rate Bond	FLOT	3	33	2.9
iShares iBoxx Dollar High Yield Corporate Bond	HYG	16	583	5.1
iShares CMBS	CMBS	0.1	1	2.3
iShares J.P. Morgan USD Emerging Markets Bond	EMB	5	91	5.5
iShares Emerging Markets Corporate Bond	CEMB	0.03	0.5	2.4
iShares Emerging Markets High Yield Bond	EMHY	0.2	3	3.3
iShares National AMT-Free Muni Bond	MUB	5	34	4.0

Source: BlackRock.

*2015. Data is a daily average from 1/1/15 to 05/29/2015.

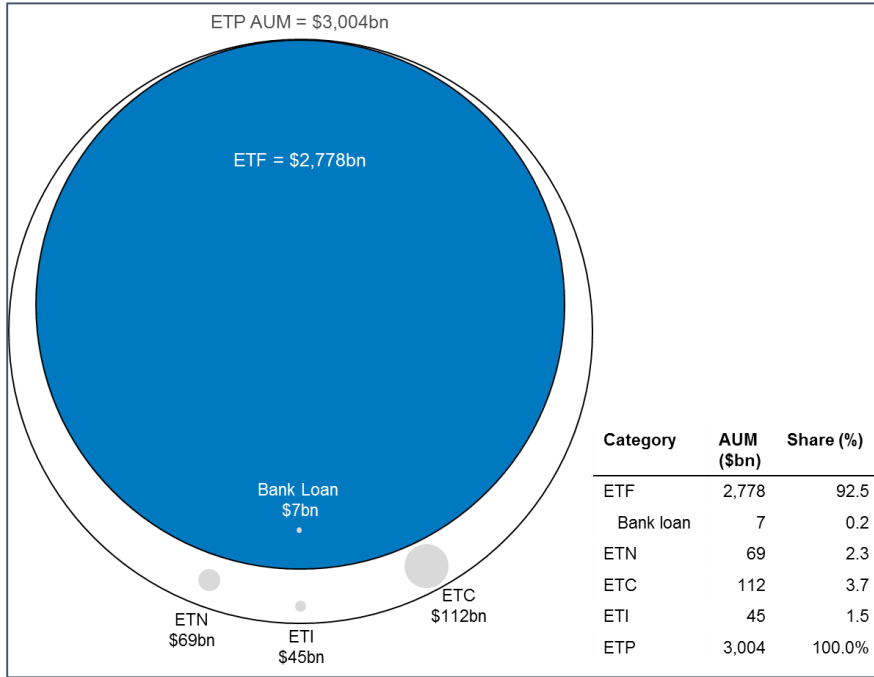
Exhibit 3: Spreads of Select ETFs Compared to the Spreads of their Underlying Baskets

<u>ETF</u>	<u>Average Spread</u> (bps)	<u>ETF In Kind Basket Spread</u> (bps)	<u>Cost Improvement</u> (%)
MSCI Emerging Markets ETF	2	16	86
iShares Russell 2000 ETF	1	11	91
iShares MSCI Frontier 100 ETF	27	55	51
iShares iBoxx \$ Investment Grade Corporate Bond ETF	1	61	98
iShares iBoxx \$ High Yield Corporate Bond ETF	1	75	99
iShares JP Morgan USD Emerging Markets Bond ETF	2	79	97

Average spreads for the 60 day period ending July 28, 2015, based on an average quote size of 1000 shares. Cost improvement equals the spread difference, in percentage terms, between the ETF and its ETF In Kind Basket, and is calculated as (a) the ETF In Kind Basket spread, in basis points, minus the average spread of ETF shares, in basis points, divided by (b) the ETF In Kind Basket spread, in basis points.

Source: BlackRock.

Exhibit 4: Schematic of ETP Classification



Source: BlackRock as of Apr. 2015. Note: diagram not to scale.

Exhibit 5: Premiums for Select ETFs for Different Asset Classes

	EMB	HYG	LQD	MUB	TIP	GLD	IAU	IWM	SPY
MIN	-9.88%	-8.41%	-10.97%	-2.86%	-2.65%	-6.15%	-5.41%	-1.53%	-1.61%
MAX	13.49%	12.76%	4.24%	4.23%	3.19%	6.73%	6.66%	1.39%	1.00%
AVERAGE	0.69%	0.80%	0.47%	0.23%	0.15%	0.08%	0.07%	-0.01%	-0.01%
MEDIAN	0.57%	0.50%	0.28%	0.16%	0.09%	0.08%	0.06%	-0.01%	0.00%
STD DEV	1.04%	1.40%	0.87%	0.70%	0.30%	0.83%	0.65%	0.14%	0.14%

Source: BlackRock, based on daily Bloomberg data from 1/1/2008-7/31/2015.

EMB = iShares J.P. Morgan USD Emerging Markets Bond ETF

HYG = iShares iBoxx \$ High Yield Corporate Bond ETF

LQD = iShares iBoxx \$ Investment Grade Corporate Bond ETF

MUB = iShares National AMT-Free Muni Bond ETF

TIP = iShares TIPs Bond ETF

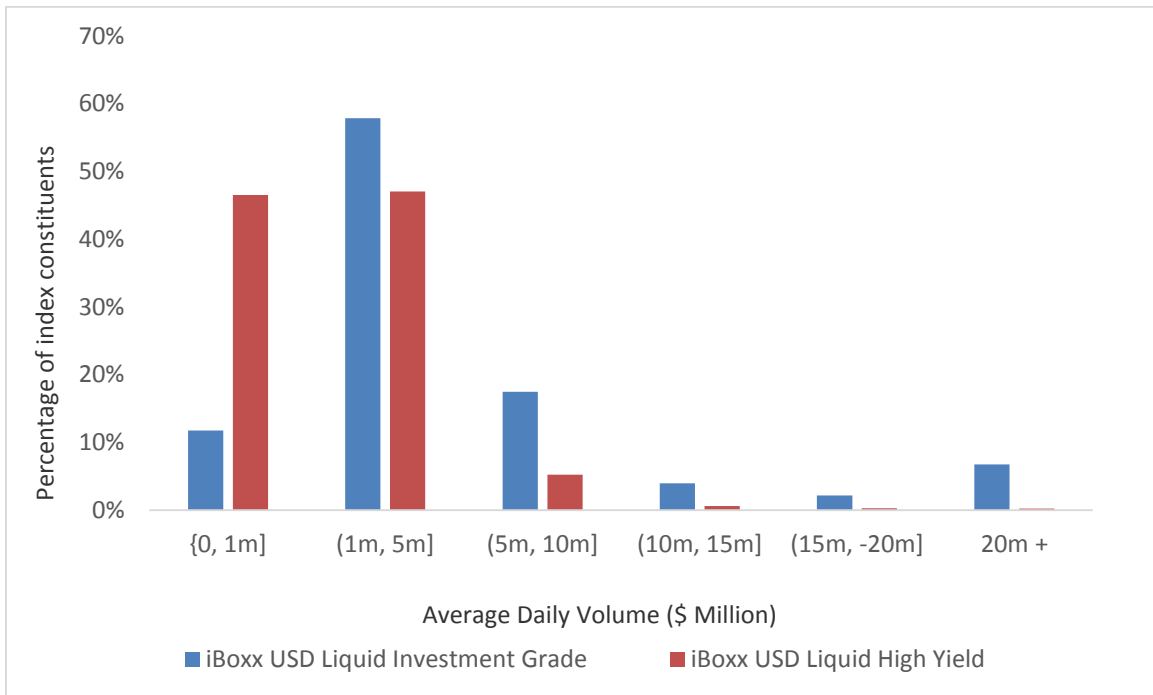
GLD = SPDR Gold Trust

IAU = iShares Gold Trust

IWM = iShares Russell 2000 ETF

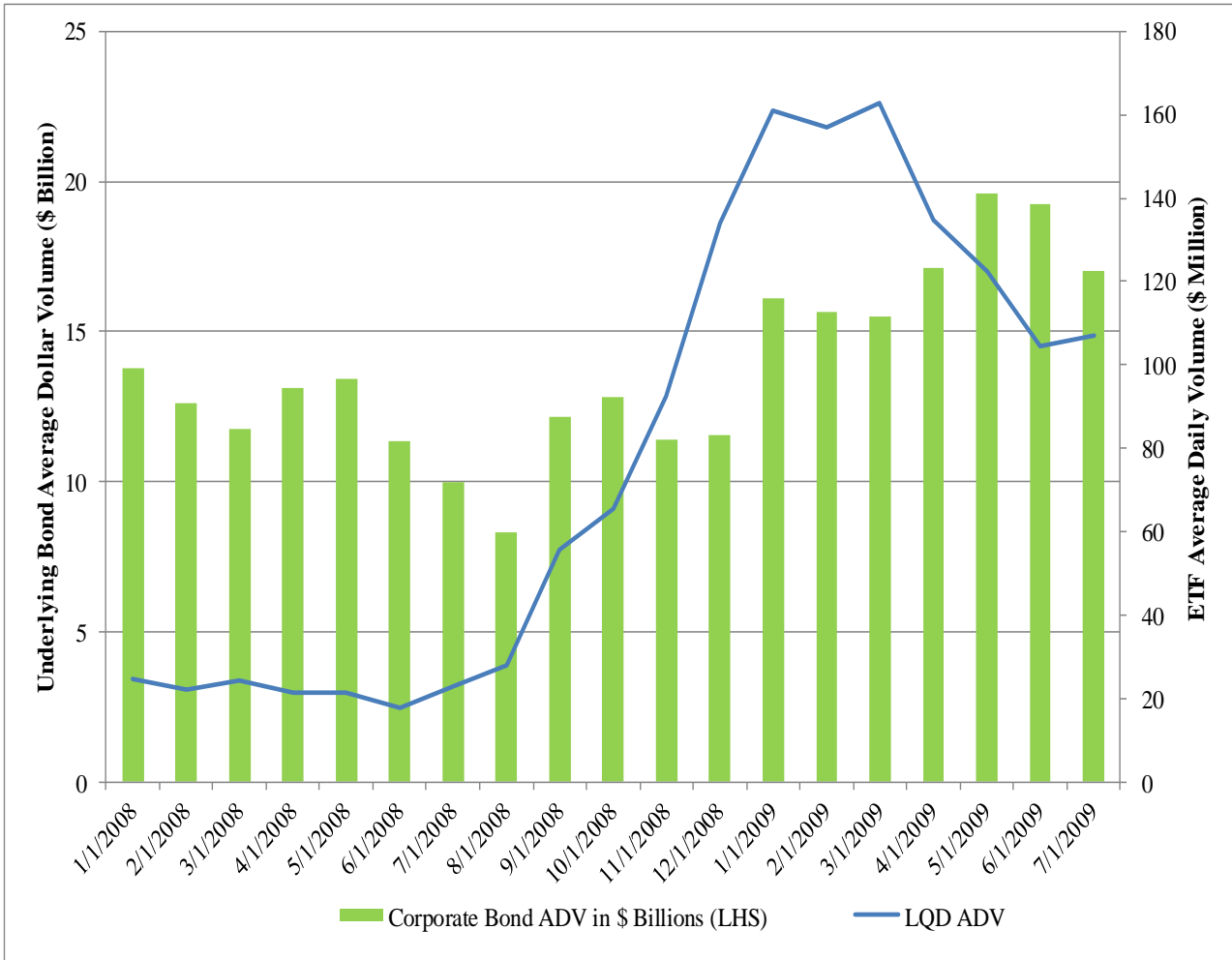
SPY = SPDR S&P 500 Trust

Exhibit 6: U.S. Corporate Secondary Market Bond Trading Frequency



Source: BlackRock, based on daily TRACE data from 1/1/2015-7/31/2015.

Exhibit 7: US Investment Grade Corporate Bond and LQD ETF Volumes in the Financial Crisis



Source: BlackRock, based on monthly averages of daily Bloomberg and TRACE data from 1/1/2008-7/31/2009 for investment grade bonds (LHS, in billions of dollars) and iShares iBoxx \$ Investment Grade bond ETF LQD (RHS, in millions of dollars).