1. Do insurers invest as “authorized participants” or only as secondary purchasers? Are redemption options different depending on whether the insurer is an AP or not? If insurers are not an AP, who are the APs for bond ETFs? Do the APs tend to retain some of the shares after the creation of the ETF?

Insurers may only purchase or sell existing ETF shares, they cannot act like “Authorized Participants” (hereafter referred to as APs). APs are broker/dealers and market makers who have an agreement with ETF providers to create and redeem new ETF shares. APs may retain ETF shares from a creation, or hold ETF shares they purchased from investors. The extent to which they do this depends on their business model. For example, many broker/dealers and market makers routinely hold shares of an ETF for which they are actively providing ETF liquidity on the exchange. The most active bond ETF APs include broker/dealers such as Deutsche Bank, Goldman Sachs, JPMorgan, Bank of America Merrill Lynch, Morgan Stanley and Cantor Fitzgerald.

2. Are in kind transfers subject to restrictions/limitations/delay or are they available upon demand? Are they a contractual right for all ETF investors?

Creations and redemptions must be made through an Authorized Participant, which must be a firm that is either a member of the Continuous Net Settlement System of the National Securities Clearing Corporation or a DTC participant and has executed an agreement with the Distributor. Accordingly, in-kind transactions with an ETF are only directly available to APs, and are available each business day based on the end of day NAV of the ETF. Investors also have the ability to create/redeem in kind, but do so through an AP (i.e. not transacting directly with an ETF). In-kind redemptions generally cannot be restricted, but creations may be under certain conditions.

Shares of a fund are “created” at NAV only in block-size creation units (e.g. 100,000 shares) or multiples thereof. A creation transaction, which may be subject to acceptance by the transfer agent, generally takes place when an AP deposits into a fund a designated portfolio of securities for a specified number of creation units (a “creation basket”). Similarly, shares can be redeemed only in creation units, generally for a designated portfolio of securities held by the fund. The composition of such portfolio generally corresponds to pro rata to the holdings of the fund.

As a result of certain conditions or events, such as a system failure or other interruption, including disruptions at market makers or Authorized Participants, orders to purchase or redeem either may not be executed according to a fund’s instructions or may not be executed at all, or such fund may not be able to place or change orders.
3. **Do you have statistics on the volume of in kind transfers?**

Below is a table of exchange traded volume and in-kind activity for the 5 most actively traded US listed iShares fixed income ETFs from 12/31/2013 - 6/30/2014:

<table>
<thead>
<tr>
<th>Ticker</th>
<th>Fund Name</th>
<th>Total Exchange Volume</th>
<th>Total C/R Activity</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>TLT</td>
<td>iShares 20+ Year Treasury Bond ETF</td>
<td>$103,976,616,900</td>
<td>$8,727,220,000</td>
<td>8.39%</td>
</tr>
<tr>
<td>HYG</td>
<td>iShares iBoxx $ High Yield Corporate Bond ETF</td>
<td>$43,008,877,180</td>
<td>$6,298,420,000</td>
<td>14.64%</td>
</tr>
<tr>
<td>IEF</td>
<td>iShares 7-10 Year Treasury Bond ETF</td>
<td>$21,415,963,880</td>
<td>$11,277,720,000</td>
<td>52.66%</td>
</tr>
<tr>
<td>LQD</td>
<td>iShares iBoxx $ Investment Grade Corporate Bond ETF</td>
<td>$19,640,607,190</td>
<td>$4,412,580,000</td>
<td>22.47%</td>
</tr>
<tr>
<td>AGG</td>
<td>iShares Core US Aggregate Bond ETF</td>
<td>$16,176,027,410</td>
<td>$3,380,270,000</td>
<td>20.90%</td>
</tr>
</tbody>
</table>

*Source: Bloomberg and BlackRock (12/31/2013 - 6/30/2014)*

4. **How do in kind transfers impact the sponsors? They have paid transaction fees to buy the underlying assets, yet they just turn them over to the ETF investor upon demand? Take for example an in kind transfer of a SPDR Nuveen S&P High Yield Muni Bond (HYMB) when it hit a discount of 4.8% to its assets in June 2013.**

In-kind transfers do not generally impact an ETF or its sponsor’s transaction costs. For in-kind creations, bonds are purchased in the secondary market by APs (or delivered to the AP by an investor) and then delivered in-kind into the ETF in exchange for new shares. For in-kind redemptions, bonds are in-kind transferred out of the ETF to APs, and then typically sold in the secondary market by the APs (or passed through to an investor, if applicable). In both cases, the transaction costs associated with purchasing or selling the bonds are incurred outside of the ETF. In-kind transfers into and out of an ETF occur at the ETF’s net asset value (NAV). In some cases creations or redemptions may be done with an exchange of ETF shares for cash. In these cases transaction costs may be passed onto the AP so as to protect the fund investors.

Because NAVs are generally struck on the bid side of the market, bond ETFs should trade at a natural premium to NAV on average. Excessive premiums or discounts may simply reflect the actionable price of the underlying securities. As an example, an AP who is motivated to redeem a fund trading at a 5% “discount” may ultimately find that the underlying bid for the bonds in the market is also at a 5% discount (i.e., the discount to NAV was only an optic as the more actively traded ETF was demonstrating price discovery with respect to the underlying bonds included in the fund’s holdings. Since not all of the
bonds in the index trade every day, some indices can take time to fully refresh their values, especially in volatile markets). For further information on this topic, please see the attached article, “Bond Market Price Discovery: Clarity Through the Lens of an Exchange” (Journal of Portfolio Management, Winter 2013).

5. Are the ETF NAVs disclosed online real-time for most ETFs? Is it possible for investors to sell ETFs at a discount to its assets and never know it? Do the sponsors provide all the information so that the investors can make good decisions?

While the price of an ETF reflects intra-day market sentiment throughout the trading day, ETF NAVs are calculated and published at the end of each business day. Additionally, indicative intra-day values are calculated and disseminated for ETFs, but the accuracy of these intra-day valuations is dependent upon the availability of good pricing information. For example, in liquid markets like US stocks or US Treasuries these intra-day values may be more accurate as real-time pricing information on the underlying securities is available. In contrast, intraday values on less liquid markets like US high yield ETFs may be less accurate as real-time pricing for high yield bonds does not exist.

Sponsors provide end of day NAVs and see to the publishing of intra-day values in order to help investors make informed investment decisions. Additionally, investors may compare the ETF price on exchange with bonds that have traded that day in the market or other instruments such as OTC derivatives.

6. Does the NAV include amounts other than that representing the underlying asset (e.g., sponsor fees, dividends/interest payments, taxes)? If sponsor fees, dividends/interest payments, taxes are not in the NAV, where are they recorded?

Fund NAVs represent the full value of the assets and liabilities of the fund, this includes the market value of the fund holdings with accrued interest along with pending liabilities such as fund management fees (which are accrued daily). The accumulated capital gain or loss position for the fund is also calculated and capital gains distributions are made by the fund annually if appropriate. The methodology and approach used for fund valuation is the same as that used for most US based mutual funds.

7. If the price of the ETF is trading too high with respect to the underlying bonds, an AP can purchase the underlying bond portfolio in proportion and exchange it for new (?) shares of the ETF. Does this actually happen (it seems like purchasing proportional bond shares would be difficult and expensive) or does the AP somehow do it synthetically? And vice versa, if the ETF is trading too low compared to the underlying bonds and an AP wants to redeem their shares, does the ETF actually proportionally sell off the bonds in the portfolio? If these transactions do actually happen, how often do they occur?
Yes, APs do regularly take advantage of pricing differences between the ETF exchange price and the executable price of the securities in the creation or redemption baskets. As bonds trade over the counter, and the liquidity of individual positions can fluctuate through time, it can take longer to execute such an arbitrage trade in a fixed income ETF relative to an equity ETF. Some APs may use derivatives such as swaps or futures to capture a relative value difference between an ETF and its underlying securities, and then either execute the arbitrage through a creation/redemption or hold the position until the market normalizes. The AP, however, may not always be required to deliver all of the bonds in the ETF to create new shares. After the close of trading the ETF sponsor publishes a “Create Basket” and a “Redeem Basket” for the following day’s trading. Typically, credit ETFs hold hundreds of bonds and the Create Basket is simply a subset of the bonds the ETF sponsor believes will optimize the tracking error of the fund to its benchmark. A typical Create Basket includes fewer bonds than are held in an ETF’s portfolio, and it is therefore much easier for the AP to assemble than having to buy the entire bond portfolio in proportion to the ETF’s holdings. Redemption Baskets also typically include fewer bonds than the fund holds, reducing the number of different bonds that are in-kind transferred to the APs in exchange for shares.

8. Are there any studies on the price volatility of the various types of ETF in comparison to common stocks?

There are numerous studies of equity ETFs vs. equity markets and bond ETFs vs. bond markets. Regarding the behavior of bond ETF prices with respect to the OTC bond market see the attached article written by Tucker/Laipply, “Bond Market Price Discovery: Clarity Through the Lens of an Exchange” (Journal of Portfolio Management, Winter 2013).

9. What causes mispricing (i.e., ETF price – Net Asset Value/ETF price) and what are the repercussions to the investor (e.g., price volatility)?

ETF prices on exchange are a function of supply and demand, and their price movements are constrained by the ability of APs to arbitrage any difference in value that arises versus the value of the underlying published creation/redemption baskets. Because NAVs are generally struck at market valuations which are generally based on bid side values of underlying fund assets, bond ETFs typically trade at a natural premium to NAV. This premium reflects the costs that some APs must bear in order to create new shares. When there is strong demand for an ETF and APs need to create new shares, the ETF price will move to a premium above the NAV that reflects the cost to purchase bonds (at the offer) and create new shares. When there is selling pressure on an ETF the price will move towards NAV (i.e. the bid side of the bond market) as that is the price at which APs would sell bonds when executing a redemption. Because investor supply/demand is balanced over the long term, the long term average premiums should tend to approximate the midpoint of the bid/ask spread (in price) of the underlying bonds.
Excessive premiums or discounts may be a function of price discovery. Because many of the bonds in the market do not trade daily their prices may be slow to reflect new market information. The ETF is trading real-time throughout the day, and so the ETF price may lead the OTC market (again see attached “Bond Market Price Discovery” article). For buy and hold investors, mispricing should not lead to any true consequences other than mark-to-market volatility as the fund and its holdings are not impacted by the exchange price. For investors who are frequently trading, mispricing may lead to better or worse execution relative to the actionable OTC value of the holdings. APs, as discussed earlier, are economically incentivized to arbitrage out mispricing when it occurs. Theoretically, mispricing between the ETF and the OTC market should not last for extended periods of time. To the extent large premiums and discounts persist (i.e. APs are not executing the arbitrage through the create/redeem mechanism), it is possible that the bond prices in the OTC market are not actionable and the ETF reflects the true market price (i.e. ETF investors are not disadvantaged).

10. Do you have statistics on how successful arbitration is achieving its goal that the ETF NAV is comparable to the underlying asset value (e.g., bond, stock)?

Yes, again refer to attached piece, Tucker/Laipply, “Bond Market Price Discovery: Clarity Through the Lens of an Exchange” (Journal of Portfolio Management, Winter 2013). The arbitrage mechanism has been quite successful at keeping the fund’s price aligned with the value of the ETF bond portfolio and bonds in the index, as evidenced by tracking error statistics. As an example, see the below standardized performance chart of the 5 most frequently traded iShares fixed income ETFs.

Source: BlackRock 6/30/2014

11. What type of entities generally engage in the arbitrage (e.g., high frequency traders, hedge funds, sponsors)?

As discussed previously, authorized participants are the only entities capable of arbitraging a difference in value between the fund and the published create/redeem basket. However, other market participants may trade the ETFs vs. similar bond exposures or derivative exposures in order to capture a difference. In the absence of the ability to create or redeem, such activity would create basis risk for the market participant.
12. The price of ETF shares is determined by the demand and supply in the secondary market and institutional investors (AP) trade bundles of ETF shares to create new ETF shares by transferring the securities to the ETF sponsor. When arbitrageurs use high frequency trades to exploit the ETF mispricing is their gain the investors’ loss? How does arbitrage activity affect returns, liquidity and price volatility?

APs are the only entities permitted to create or redeem shares vs. the published baskets. However, other participants including retail and institutional investors are able to freely trade the ETFs on exchange. To the extent that a non-AP entity is trading the ETF long or short based on a view that it is mispriced, such activity may actually be beneficial as it exerts competitive pressure on APs to keep the funds aligned vs. the true actionable value (again, which may differ from the prior day’s closing NAV). In general higher trading volumes are associated with better alignment of exchange valuations vs. actionable OTC valuations. As discussed in the response to question 9, trading activity and exchange market price volatility does not impact fund investors unless they are executing. We do not believe that bond ETFs are impacted to any more degree by HFT than other exchange traded securities.

13. Shocks to ETF prices are passed up to the underlying securities via the arbitrage between the ETF and the underlying assets. As such, ETFs increase the volatility of the underlying securities which contributed to shock between the futures market and the equity market during the Flash Crash on May 6, 2010 when the S&P declined dramatically due to the E-mini futures market. Do you believe that this arbitrage activity may induce contagion and that the High Frequency Trading adds to noise to market prices and can pose a threat to market stability?

We disagree with this statement and do not believe that ETFs played a role in the flash crash. Attached please find a paper by BlackRock research which addresses this contention (“ViewPoint – Understanding the Flash Crash” Nov 2010), along with a second piece on the topic that was revised a year later (“ViewPoint – Revisiting the Flash Crash” May 2011).

14. The imbalance in the ETF outweighs the imbalance in the underlying securities consistent with demand shocks hitting only the ETF market. Do you see this as a material risk for ETF investors?

We disagree with this statement. In fact, we believe that in many cases (e.g., high yield bonds), the ETF exchange liquidity allows the ETF to absorb shocks more efficiently and with less dislocation than the underlying market. As an example, during the “Taper” volatility of 2013, HYG’s volume increased significantly, sometimes exceeding $1B per day on exchange with relatively small redemptions. This was in stark contrast to traditional open end mutual funds which were hit with investor redemptions and had to raise cash to meet them. While the market price of HYG was at a “discount” to its NAV, we strongly believe that the discount represented price discovery as the underlying HY market was
experiencing significant dislocation and liquidity impairment. See attached paper, “HY ETFs in Stressed Markets: Case Study”

15. State Street and Citi have halted redemptions in the past because the asset class they were tracking (e.g., muni bonds or emerging market funds) were stressed. The Citi ETF desk hit internal capital limits on collateral so it had a temporary redemption freeze. Do you see this occurring more frequently and with more severely due to the growth or other factors? Is the liquidity going to be available to insurers when it’s really needed?

Like all financial instruments, ETFs are dependent upon broker/dealers, market makers, and other financial intermediaries to make markets and provide liquidity to investors. It is common in both the stock and bond markets for broker/dealers to pull back from or increase their activity in specific markets according to market conditions. ETFs are not any more exposed to this activity than any other financial instrument or security (including bonds). In fact, we find that during periods of market dislocation the level of available ETF liquidity tends to increase. During the market volatility in the financial crisis, or the “Taper Tantrum” last summer, many investors decided to sell a wide range of global financial assets. Many of these investors turned to ETFs to execute their investment views. Even where the underlying markets were thinly traded or closed, ETFs empowered investors to buy and sell investment exposures immediately, throughout the trading day. Global markets saw surges in trading last summer. The secondary market volume for ETFs surged even more. According to NYSE, in June 2013, ETF volume accounted for 34% of all US exchange volume, versus a more typical monthly contribution of 25% of all volume. As an example, iShares saw record trading volumes for some of its flagship funds. During June 2013, the iShares iBoxx $ High Yield Corporate Bond ETF (HYG) exceeded $1 billion in daily trading for the first time, and its largest emerging market equity fund, the iShares MSCI Emerging Markets ETF (EEM), traded $5.6 billion in one day.

Further, State Street would like to emphasize the following points in response to this question:

State Street did not in fact halt redemptions in the past due to underlying asset class stress. State Street believes the question is referencing a period in June 2013 when Municipal Bonds were under “stress”. All SPDR Municipal Bond ETFs maintain a regular way process of cash create / in-kind redeem. In addition to in-kind redeem, the fund will accept a cash redeem order as an accommodation to an AP, if, and only if, the portfolio manager approves the cash redeem order. Cash redeem orders are generally accepted in “normal” market conditions if it will not cause any additional cost to the fund or its underlying shareholders. ETFs are structured whereby APs incur the cost of creation/redemption orders, meaning the introducing AP covers the cost of Creations/Redemptions, not the fund. If a cash order is accepted there is a stated fee that the AP will pay on the notional value of the redeem order to cover the frictional cost of selling the bonds in the market. The stated nominal fee can be adjusted but is set for the day, so if there is an adjustment it would be announced to the AP community the night prior to its effectiveness – this means that the nominal fee cannot be changed intraday. If market transaction costs increase above the stated fee, the PM would choose to not accept cash redeem
orders, so the fund would revert to the normal process of in-kind redeems and the accommodation cash redeem feature would not be an option. All SPDR ETFs operated normally from a create/redeem perspective during the period in question including in-kind redemptions across fixed income ETFs inclusive of Municipal Bonds.

16. Do you see the introduction of exit fees as a potential risk mitigation technique to modify the liquidity issues of the ETF market?

No, we do not see this as a potential risk mitigation technique, and do not believe that exit fees for ETFs have ever been contemplated. This is because ETFs already have a built-in mechanism for ensuring that each transacting investor bears their share of any costs associated with their own activity, and the price that an investor pays reflects the costs that an AP would need to incur to create or redeem shares and provide liquidity.

In fact, we believe that the ETF exchange liquidity actually serves as a buffer for the OTC bond market, as investors can trade an ETF on the exchange at a market clearing price even if the OTC bond market is impaired. The exchange liquidity is a benefit to ETF investors that is not present in open end mutual funds (which are completely reliant on the liquidity of the underlying OTC market). The ETF market price on exchange allows investors to transact at a fair level without harming investors who wish to remain in the fund. Effectively, the market price serves the function that exit fees would be designed to do.

17. Synthetic ETFs don’t own the underlying investments being tracked by the ETF and are more similar to replications. How can regulators identify these and what do you see as the additional risks in them? Kweku Adoboli at UBS incurred $2.3 billion in trading losses with ETFs. Adoboli at UBS had disguised the risk of his trades by using forward-settling ETF cash positions. Some ETF transactions in Europe are not issued confirmations until after settlement has taken place. This allows a party in a transaction to receive payment for a trade before the transaction has been confirmed. CNN reported that some banks have deliberately allowed certain levels of fails-to-deliver, as a method of “dealing with financial stress” so that between accounting cycles the value of securities sold, but not delivered, as well as the value of the cash booked, but not received can be reflected.

ETFs report holdings daily. While some ETFs utilize derivative instruments, the vast majority of US ETFs are physically backed by a portfolio of stocks or bonds. Regulators are able to observe holdings and identify derivative positions. And similarly, the NAIC SVO in assigning a designation to a bond ETF looks through to the underlying holdings of an ETF, as well as to the allowable investments within the prospectus and within the defined index methodology that the ETF is tracking. If there is synthetic exposure or a derivative instrument within the ETF, the SVO will not assign a NAIC designation and therefore, the bond ETF will not get bond-like treatment.
18. How do ETFs use derivatives and does it increase the risk to the investor? (e.g., For liquidity reasons do ETF underweight duration but short securities or use derivatives to reduce duration? Performance and cash holdings do not always correlate, so funds may have to use these as overlays to increase duration.)

The majority of fixed income ETFs in the US do not utilize derivatives. Some ETFs use derivatives to achieve leverage (e.g., levered inverse funds), which exposes investors to the risk of that leverage. To the extent the derivatives are OTC and not cleared through a SEF, investors may be exposed to some degree of counterparty risk. Other applications of derivatives would be to mitigate risk, such as reducing interest rate risk (duration) through the use of interest rate futures. Importantly, the majority of ETFs publish holdings on a daily basis.

19. Are there ETFs that finance a portion of their portfolios via the repo market to raise cash without having to sell assets? If yes, what is the risk to the investor?

The majority of fixed income ETFs in the US do not utilize repo to raise cash. There are some active ETFs which employ repurchase agreements for financing purposes. Investors would therefore be exposed to the risk and leverage of such financing arrangements. We are not aware of any passive ETFs that employ repurchase agreements for financing / leverage purposes. To the extent that an ETF is using repurchase agreements it is disclosed in its daily holdings.

20. ETFs are subject to Investment Company Act reporting requirements and similar to mutual funds they have to disclose their portfolio holdings at the end of each fiscal quarter. Are there additional disclosure requirements that indicate what type of investor and with what type of objectives should be investing in them?

Most ETFs report holdings daily. Additional disclosures, including objectives and risks, are listed in the Prospectus and Statement of Additional Information. In addition, many third party risk platforms (Aladdin, BondEdge, Yield Book, Bloomberg, etc.) also allow insurance companies (and other investors) the ability to look through the ETF and view the ETF bond holdings alongside its individual bond holdings. In doing so, investors can aggregate risk across their entire portfolio and easily see whether they are in compliance of internal and regulatory limitations.

21. How have funds strengthened rules and requirements for funds under management including fund redemptions, pricing and liquidity disclosures? What are the controls to ensure that insurers buying ETFs have adequate disclosure of their risks?

All ETF risks are disclosed in the funds’ Prospectus and SAI. The disclosures outlined in these documents are reviewed on a regular basis and updated as appropriate.