

EFAMA Comment Paper

Counterparty and liquidity risks in exchange-traded funds

A response to the ECB

18 June 2019

With this comment paper, EFAMA¹ takes the opportunity to respond to the ECB's "special feature" study dedicated to counterparty and liquidity risks in exchange-traded funds (ETFs), accompanying the ECB's periodic *Financial Stability Review* of November 2018. We address the findings of the ECB's study in relation to the two key aspects of liquidity and counterparty risk by presenting our reservations, accompanied by an alternative narrative in light of some often-overlooked operational features of ETFs and evidence from recent episodes of market volatility.

While understanding the motives behind the increasing regulatory scrutiny of the global ETF industry, we believe it essential for the regulatory community as a whole to better appreciate the operational mechanics underpinning ETFs, the commercial incentives of the financial parties involved, but above all, of how existing regulatory requirements already play a key role in preventing ETFs from being a catalyst of systemic risk.

Following an executive summary, we develop our reasoning around the two core aspects highlighted in the ECB's recent study, i.e. liquidity and counterparty risks, respectively in Sections I and II of our comment paper. In Section I, we provide evidence to confute some of the ECB's findings, presenting arguments based on recent episodes of market volatility and their impact on the primary and secondary market dynamics. In Section II, we provide several examples of current market practices to frame the relationship between UCITS-licensed ETF providers and their counterparties, i.e. the authorised participants (APs) and OTC swap/securities lending counterparties.

Section III will explain why further regulation for ETFs – at least in Europe – is presently not warranted. Authorised under and operating within the strict bounds of the comprehensive EU UCITS regime, as reinforced by MiFID II, EMIR and SFTR, these frameworks already provide an enduring base for the European ETF industry to serve its investors, all while protecting these and guarding financial stability.

To stress the resilience of the ETF product during episodes of market volatility, the final Annex presents three recent episodes where, either the ETF or a substantial part of its underlying securities, experienced trading suspensions.

¹ The European Fund and Asset Management Association (EFAMA) represents 28 member associations, 60 corporate members and 23 associate members. At end 2018, total net assets of European investment funds reached €15.2 trillion. These assets were managed by almost 62,000 investment funds, of which more than 33,000 were UCITS (Undertakings for Collective Investments in Transferable Securities) funds, with the remaining funds were AIFs (Alternative Investment Funds).

Executive Summary

Our comment paper confutes the ECB study's main findings by focusing on its two core areas, namely liquidity and counterparty risks inherent to the structure and functioning of ETFs. A final section considers the merits of further regulatory action addressed at the European ETF industry.

Liquidity Risks

While understanding the increased regulatory focus on the global ETF industry and agreeing with some of the study's early premises, we find the ECB has not adequately considered one defining feature of ETFs, and namely, the existence of a deep and liquid secondary market. While attempting to draw conclusions on an ETF's degree of resilience to bouts of volatility by focusing on the behaviour of APs, results from the ECB's regression analysis are reduced to explain the latter's readiness to create/redeem on the primary market, whereas a substantial part of ETF liquidity factually resides in its secondary market. It is here that investors, as buyers and sellers of an ETF's shares can trade their exposures at average daily volumes that are multiple times the value of any primary market creation/redemption performed by an individual AP. Our comment paper highlights the relevance of the secondary-to-primary average daily volume (ADV) ratio when attempting to draw meaningful conclusions on an ETF's degree of liquidity. To this effect, we cite instances where recent market corrections, concomitant with volatility spikes, have hardly led APs to have to deal the ETF's underlying securities. In parallel, secondary market volumes are seen to increase precisely around these episodes, proving the role of the secondary market as an effective "shock-absorber". Both findings demonstrate that the ECB's hypothesis of contagion, or "second-round" effects, linking the secondary to the primary market, is not supported.

Apart from the liquidity-enhancing role of the secondary market, due consideration should also be given to the rigorous process which goes into structuring an ETF before product launch. Here, unlike generally assumed, ETF providers engage with potential investors and service providers early, as well as with their domestic supervisors when filing for authorisation. Our comment paper illustrates some of the salient passages of such process, drawing from the examples provided by some of our Members.

In addressing potential liquidity risks, a second important feature absent in the ECB's analysis is the degree of discretion APs exercise in managing their intra-day exposures by making use of their own balance sheet. Unlike often assumed, we prove that APs can choose to not trade an ETF's underlying securities in the course of a market correction. Where a creation/redemption is settled in-kind, there is no movement in the primary market for the underlying securities. With volatility affecting the value of such securities, APs would in any event not attempt to sell these in a turbulent market, as this may incur a short-term, yet significant, loss for them. Rather, they may choose to warehouse these securities temporarily on their balance sheet, use them to deal a creation for another ETF, transfer them to another existing client, or hedge an existing position. More commonly in Europe, creations/redemptions are dealt in cash, thereby removing the risk of a market impact altogether. The narrative therefore linking large ETF redemptions to the resilience of APs via immediate "feedback loops" and ensuing concerns around counterparty risk can thus be challenged.

A third key feature is the potential role of the secondary market to offer price information for some of the ETF's individual components. This becomes particularly true in the fixed income realm, where investors have increasingly turned to ETFs as an expedient mean to derive the price of an individual bond at times when it is not trading or when its last available price is no longer reliable.

Counterparty Risks

We find that the concerns raised around ETF counterparty risks are not new and do not account for the existing regulatory safeguards introduced in Europe by ESMA for UCITS ETFs already in 2012. In fact, ESMA's *Guidelines on ETFs and other UCITS issues* reflect the EU market supervisors' response to some of then-perceived risks stemming both from swap-based (or "synthetic") and physical replication ETFs, but which are definitely not unique to ETFs *per se*. Our comment paper highlights what in our view are the main shortcomings of ECB's analysis in this respect:

- I. The original causes behind counterparty risk, as for instance the failure of an AP as a viable service provider to an ETF, remain unexplained and are purely assumed in the absence of any probability;
- II. The ECB misreads investors' intentions behind their desire to sell their ETF shares. These sales are neither prompted, nor made worse, by the belief that the solvency of the AP is at stake. Rather, they are driven by the simple fact that investors wish to trade their exposure on the basis of new information, changed views and expectations as to the direction of the markets;
- III. The theory around the counterparty risk channel between the ETF and the AP/swap counterparty is not proven. We point in this regard to the incorrect premise that APs and the swap counterparties are one and the same entity, whereas today's operational practices largely favour a diversity of APs, combined with multi-swap counterparty models, as best practices;
- IV. Unlike assumed by the ECB, counterparties do not freely choose which securities to post to the ETF. In relation to the composition of an ETF's substitute basket, we clarify that it is the ETF provider – in compliance with its own risk management procedures and regulatory requirements – that dictates which securities it is ready to accept. The same considerations apply to the received collateral, both for managing variations in the value of the OTC swap or in the context of loaned-out securities;
- V. The risks from excessive concentration of ETF counterparties deriving from intra-group affiliations should not be exaggerated. Risks are naturally mitigated by the need to ensure "best execution" for clients. Group affiliations thus are not decisive in awarding affiliated entities over non-affiliated ones. A robust and open Request for Proposal (RFP) procedure ensures service contracts are awarded based on the best economic outcome for clients. Group affiliations are also scrutinised under the existing UCITS Directive's conflict of interest provisions.

Why further regulatory action is not required

In the third and final section of our comment paper, we recommend a greater appreciation of the mutually reinforcing pieces of existing EU regulation – beginning with the UCITS Directive and comprising “Level 1”, “Level 2” and “Level 3” requirements/recommendations - in adequately addressing the risks implied by the ECB. In addition, we also point to the role of circuit-breakers, or other volatility control mechanisms, implemented by national exchanges.

We strongly believe that further ETF regulation is not warranted. The liquidity and counterparty risks defined in the ECB’s study are not supported by market observations across several recent episodes of market volatility. In such circumstances, ETF markets have proven not only resilient, but in some instances have also functioned as a useful “proxy” for investors to continue exchanging premia and risks where individual securities were unable to trade at all. Considering, therefore, that a proposal for an “ETF-specific regulatory framework” has no justification, EFAMA would support a more cautious and piecemeal review process which leverages off an open and transparent consultation method, as well as off the wealth of experience of market supervisors in authorising and supervising ETFs. Of paramount importance is for such process to not duplicate existing requirements and to recognise the vast amounts of information that both regulators and investors alike already have at their disposal.

I. Liquidity Risk

Liquidity risks tied to open-end funds have been among the main preoccupations of several regulatory bodies, including national supervisors and international standard-setters (i.e. IOSCO, FSB and IMF), since the global financial crisis of 2008. It is therefore not surprising that given the open-end nature of ETFs and their growing relevance in terms of attracting ever greater inflows from both retail and institutional investors, both in Europe and abroad, the ECB study has chosen to highlight a series of potential risks.

As for ordinary mutual funds, an ETF share's degree of liquidity depends on a primary market, where APs deal creations/redemptions while hedging their own exposure throughout the trading day. However, an ETF's degree of liquidity is additionally determined by the depth of a secondary market, where buyers and sellers trade their respective ETF shares and where liquidity provision for these is enhanced via several market-makers, each quoting bid-ask spreads reflected on one or more exchanges. In sum, liquidity considerations around the ETF product must recognise and understand both distinct "layers" of liquidity, as well as their interplay.

We also concur with the fact that episodes of extreme market volatility are known to increase the cost for market-makers to continue providing liquidity, as reflected in their increased bid-ask spread quotes. "Operational glitches" or the intervention of market authorities in recent history have indeed been known to temporarily impair an ETF's arbitrage mechanism, leading the ETF's share price to trade at significant premiums/discounts in relation to its implied NAV².

Yet, despite the recurrence of such episodes, none has approached the systemic proportions as assumed throughout the ECB's study. Moreover, as the study also admits, these episodes have been short-lived. As the following sections demonstrate, we argue that this is for a variety of identifiable reasons, rather than the outcome of chance or good fortune.

We start our analysis by commenting on some of the findings from the empirical assessment of the liquidity risk channel, as presented in Box A of the ECB study.

I.1 ETF arbitrage activity under stressed market scenarios

We take due note of the empirical method used by the ECB to test a regression model over a sample of EMU-domiciled equity and bond ETFs. Findings reveal that with higher volatility (as represented by the VIX index) comes a reduced incentive for APs to engage in creations/redemptions. This becomes statistically significant for bond ETFs, where the APs would struggle to easily access bond instruments to build their hedges, given the asset class' generally lower degree of liquidity compared to equities.

² Recent examples include the volatile opening of the NYSE trading session on 24 August 2015, prompted by trading halts that prevented market makers from accurately pricing and trading the underlying securities. A month prior, in the first week of July 2015, it was the intervention of the Chinese securities regulator (CSRC) that led to trading suspensions for a tide of Chinese corporates listed on the country's two main exchanges (see Annex).

After a careful consideration of the ECB’s findings and considering actual AP market practices and secondary market dynamics, we believe there are alternative explanations behind the perceived inactivity of APs during periods of increased market volatility.

Firstly, the reduced primary market activity in the form of fewer redemptions performed by APs is more likely to be the outcome of a significantly more active secondary market at times when volatility increases, rather than the effect of APs retrenching from their dealing activity. Unlike under more placid market conditions, volatility acts as a powerful incentive for more buyers and sellers of a given ETF’s shares to enter the secondary market and trade their exposure among each other. Investors looking to sell their shares are meeting more buyers in turn looking to take on the same exposure by paying a lower price. An initial oversupply of an ETF’s shares is nothing but a first-round effect of a volatility spike, inevitably accompanied, as a second-round effect, by a rising demand from buyers for the same shares as these enter the secondary market. The absence of, or lower, primary market activity demonstrates that the secondary market has aptly “cushioned” the impact of the volatility spike, lessening the likelihood for APs to have to intervene in the primary market, if at all. In other terms, the perceived inactivity of APs results from there not being a strong enough arbitrage opportunity for them to make a redemption worthwhile, rather than on them withdrawing altogether as assumed in the ECB study.

Secondly, in volatile markets, the APs and market-makers typically prefer to hold onto their ETF share inventory, knowing that, were volatility to persist, there would be better opportunities to dispose of the ETF’s shares in the secondary market, rather than automatically perform a redemption and consequently crystallise the related losses. An AP’s discretion exercised in such instances should thus be appreciated as an important element that “brakes” the alleged forced selling of an ETF’s underlying securities.

I.II Characterising an ETF’s liquidity resilience

Agreeing with the ECB study that an individual APs’ “readiness” to create/redeem can be tested during bouts of market volatility - where these may make offsetting daily exposures more challenging for the AP and ultimately more costly for investors via a wider bid-ask spread - what matters most in terms of ascertaining whether an ETF can weather even significant market corrections are (i) the liquidity of the underlying market before product launch, and (ii) the ratio of secondary to primary market volumes. In the following sub-sections, we illustrate both in greater detail.

I.II.I Liquidity considerations before product launch

Prior to the launch of an ETF, critical is the assessment of the tradability of the underlying asset pool in the primary market, where an ETF’s degree of liquidity and pricing are initially determined. Other considerations relate to the quality of the index, as well as to the capacity of individual APs to deal creations/redemptions for the ETF’s shares based on their experience in transacting the underlying securities. Such considerations are critical also for the ETF to attract sufficient inflows to achieve a minimum size, beyond which economies of scale are expected to support the commercial success of the ETF post-launch.

More specifically, from the review of some of our Members' internal processes, the product pre-launch phase typically involves testing market demand and outlining the product's main features, e.g. by monitoring competitors, in conversations with existing clients and index providers, as well as by contacting other critical intermediaries, namely potential AP dealers and investment banks' capital markets desks.

Where such preliminary exchanges prove fruitful, a subsequent implementation phase is initiated, beginning with a thorough assessment of the liquidity of the individual index components, as these will determine the price for the ETF's liquidity on the secondary market. Such assessment will typically involve multiple expert teams across various functions within an ETF provider (e.g. risk management functions, quantitative analytics, portfolio engineering and structuring functions, etc.). Index components will be individually screened against pre-set parameters, as for instance, issue size, volumes, pricing, volatility, minimum issuer ratings (especially for fixed income securities), etc.

This analysis is often complemented by one performed on the entire portfolio, accounting also for different potential fund sizes. For instance, one large provider commonly carries out a liquidity "snapshot" analysis for different portfolio sizes (e.g. from €50 million to €1 billion, to €5 billion, to €10 billion, or larger, depending also on the asset class). For each portfolio, advanced analytics allow insights to be gleaned into the portfolio's respective transaction costs, including days-to-unwind, based on various liquidation scenarios. Results will therefore present a breakdown of the portfolio's securities based on the number of days needed to liquidate them with the associated transaction costs³. Assessing liquidity risks in this phase also requires estimating the size, and consequent adverse impact, of inflows and outflows on the ETF's published tracking difference. There are also instances – albeit rare – where internal risk committees may define a maximum amount of AuM for an ETF to avoid an excessive concentration of investors in one product with relatively illiquid assets.

From a regulatory perspective, the structuring of an ETF's portfolio must in addition adhere to the prescribed diversification rules, both for the benchmark and consequently for the portfolio (see *infra*)⁴. We wish to stress that compliance with diversification rules – to be demonstrated before internal product governance committees, the ETF provider's own Board and national supervisors upon the filing of an authorisation request – is another essential pre-condition for an ETF to come to market.

Prior to product launch, a complementary liquidity assessment may also be performed at the level of the individual APs. These institutions will verify that trading the index components will guarantee competitive bid-ask spreads on the secondary market (in turn, the result of each components' degree of liquidity in its own proper "cash" market), as well as test available hedging options.

³ Regarding the latter, a separate analysis decomposes the transaction cost of each security into two components: fixed cost and market impact. The fixed cost, or linear cost, component is linearly proportional to the amount of security being traded, while the market impact component represents the non-linear cost attribution due to the market response to the security being traded.

⁴ For UCITS ETFs, please refer to the relevant articles of the UCITS Directive (in particular, Articles 52 and 53), as well as to the ESMA *Guidelines on ETFs and other UCITS issues*, originally published in December 2012 and updated in August 2014 (in particular, Section XIII thereof, dedicated to financial indices).

It is important to bear in mind that an ETF's successful launch, apart from one or more APs, will also be supported by several contracted market-makers. For these, a successful ETF allocation will be based on a transparent Request for Proposal (RFP) process and will depend on the market-maker's ability to exhibit the most competitive bid-ask spreads. Nevertheless, in most cases and especially with ETFs that are high in demand (i.e. the ones tracking large capitalisation indices), there will often be multiple contracted, as well as non-contracted, market-makers prepared to meet the growing supply and demand visible on European exchanges since the entry into force of MiFID II in January 2018.

I.II.II The secondary-to-primary market volume ratio

Whereas ordinary mutual funds' share value is computed at the end-of-day NAV, ETFs can count on an active secondary market displaying bid-ask prices throughout the trading day. It is in the secondary market that investors actively buy and sell their shares, trading their exposure based on the amount of ETF shares outstanding. Important demand or supply imbalances in the secondary market are met by the activity of APs which engage with the ETF provider to respectively deal a new share creation or redemption depending on the case. In other terms, where for instance demand for ETF shares exceeds the outstanding supply, the ETF will naturally trade at a premium compared to the intraday indicative value of the fund's holdings⁵. Such deviation presents a natural arbitrage opportunity for APs, which will look to establish a short position in the over-valued asset (i.e. the ETF shares), while matching it with a long position in the under-valued one (i.e. the basket of securities constituting the fund's underlying portfolio). To do so, APs will engage with the ETF's provider for the latter to create new "blocks" of shares to exchange with the APs in return for either a basket of the underlying securities (common in physical replication) or cash (common in synthetic replication)⁶. The newly created shares are then sold into the secondary market by the AP – directly or through several market-makers – thus eliminating the original imbalance and re-aligning the ETF share price with the fund's indicative NAV. In the case of redemptions, in turn provoked by a significant supply imbalance in the secondary market, such arbitrage mechanism works in reverse. A key implication behind such mechanism is that an ETF's AuM (i.e. the fund's "size") is increased or decreased only where there are APs which proceed to respectively deal creations or redemptions. In other terms, the mere buying or selling of ETF shares on the secondary market, below a significant size, has no impact on the valuation and trading of the underlying securities.

To test some of the ECB's findings, we now turn to analyse with what frequency creations/redemptions occur in relation to average daily volumes in the secondary market for both equity and fixed income ETFs. Based on the ECB study's narrative, sudden bouts of market volatility are likely to generate mounting selling pressures in the secondary market with inevitable knock-on effects in the primary market, where APs may at a certain point even withdraw from dealing redemptions given difficulties

⁵ Apart from demand/supply imbalances, there are other secondary factors that also concur to an ETF's share price deviations from the indicative value of its underlying portfolio, notably transaction costs, time zone differences, etc.

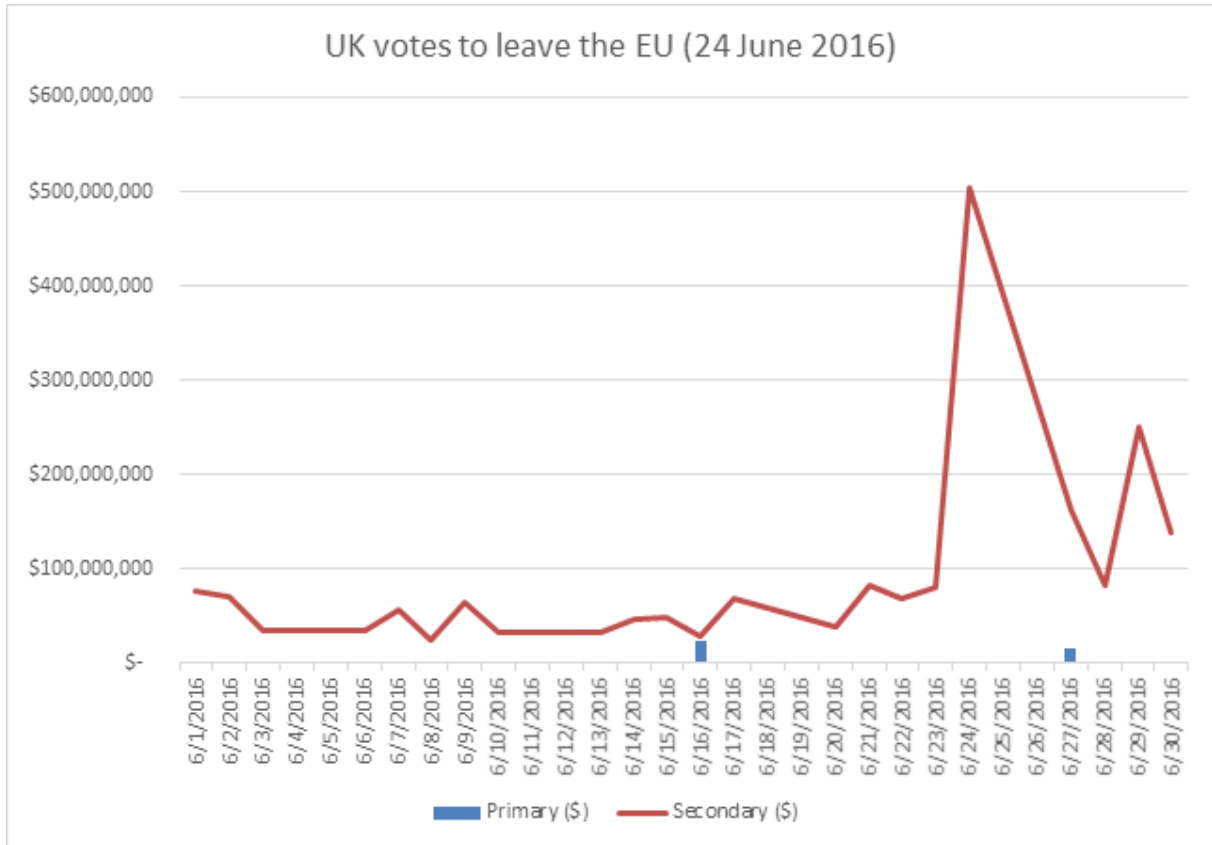
⁶ To note that, unlike in the U.S. where creations/redemptions are predominantly settled in-kind and accrue a tax advantage, in Europe cash settlement is more common (approximately between 75%-80% of all creations/redemptions). In-kind settlement is more advantageous for European APs when doing creations/redemptions of fixed income ETFs, allowing the former to access baskets of bonds on more convenient terms than otherwise having to source them in a more fragmented open market and with possibilities for settlement fails.

of establishing their hedging positions in the ETF's underlying securities. The ETF would then *de facto* continue to operate as a closed-end fund.

On the contrary, our analysis of individual ETFs demonstrates that it is precisely at times of heightened market volatility that the ratio of secondary-to-primary market trading – expressed as average daily volumes (ADV) – increases visibly compared to normal market conditions. Incontrovertibly, therefore, investors looking to sell their ETF shares are finding buyers looking to take on the same exposure at a lower price. In other terms, ETF secondary market liquidity is far from experiencing the type of contraction coinciding with the self-reinforcing “feedback loops” the ECB study often cites. On the contrary, spikes in the ETF's ADV prove that more investors are reassessing their individual exposures and adjusting their portfolios accordingly by either taking a bearish or bullish view, depending respectively on whether they believe that the ETF's underlying securities are being under- or over-sold. Moreover, these dynamics confirm not only the diversity of investor views on the underlying asset class at one specific point in time, but also the versatility of ETFs as tools at the disposal of investors to meet their needs. As also recognised in the ECB's study, these could range from a core, “buy-and-hold” allocation to a shorter-term tactical one affecting a portfolio's more peripheral holdings, from an effective cash management tool to one used as collateral to other financial transactions.

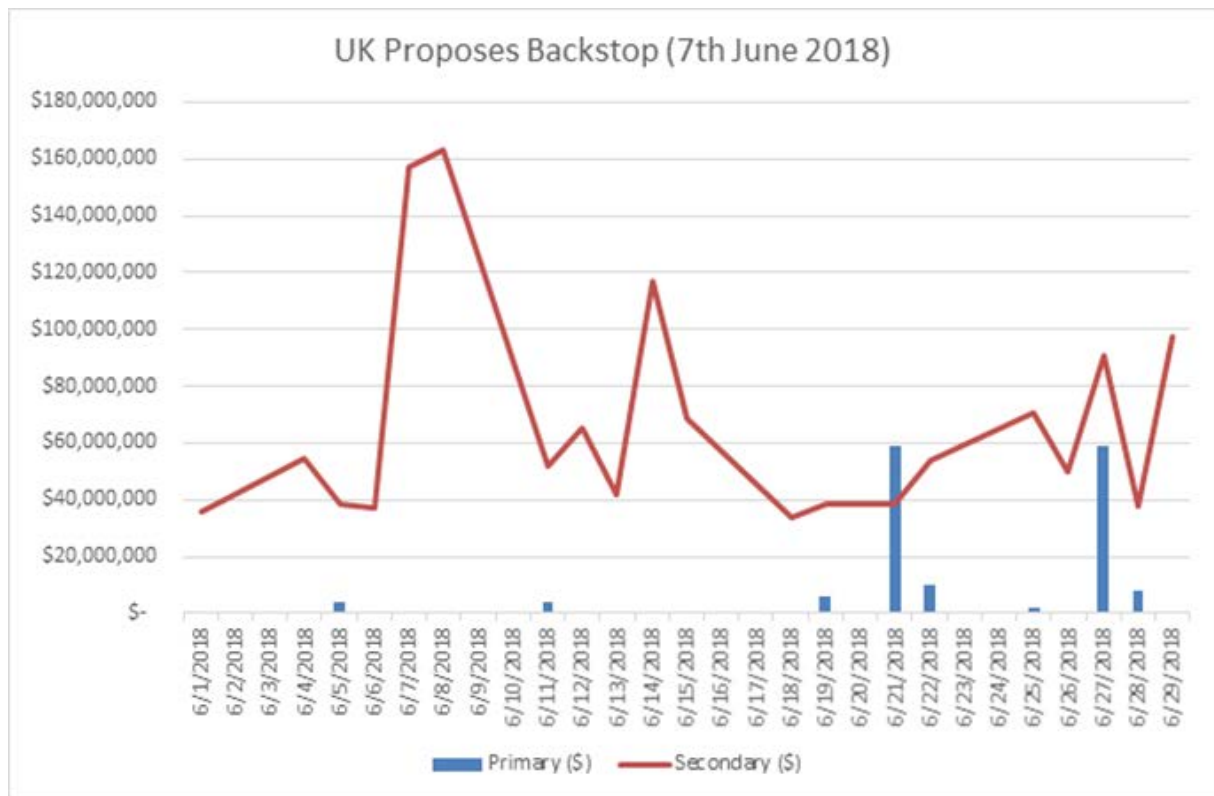
Emblematic of the fact that an ETF's secondary market can trade several multiple times the volume of the underlying cash one was for instance the BlackRock iShares FTSE 100 UCITS ETF (ISF), which on 24 June 2016, in the immediate aftermath of the Brexit referendum result, recorded secondary market volumes over US\$500 million with not one single AP redemption in the primary market. Such orders of magnitude have been subsequently confirmed by other market episodes related to the Brexit negotiations, as the chart further below demonstrates. To note is that the graph depicts the total of secondary market volumes traded, including exchanges, multilateral trading facilities (MTFs), as well as OTC-traded volumes transacted on Request for Quote (RFQ) platforms. It is important to additionally recognise that the entry into force of the MiFID II framework in January 2018 has introduced post-trade reporting requirement for all secondary market ETF trades, which has gradually brought more secondary market liquidity to “lit” venues, while enhancing trade transparency for all market participants involved.

Secondary-to-Primary Market Volume Ratio for the iShares FTSE 100 UCIST ETF (ISF)



Source: Bloomberg

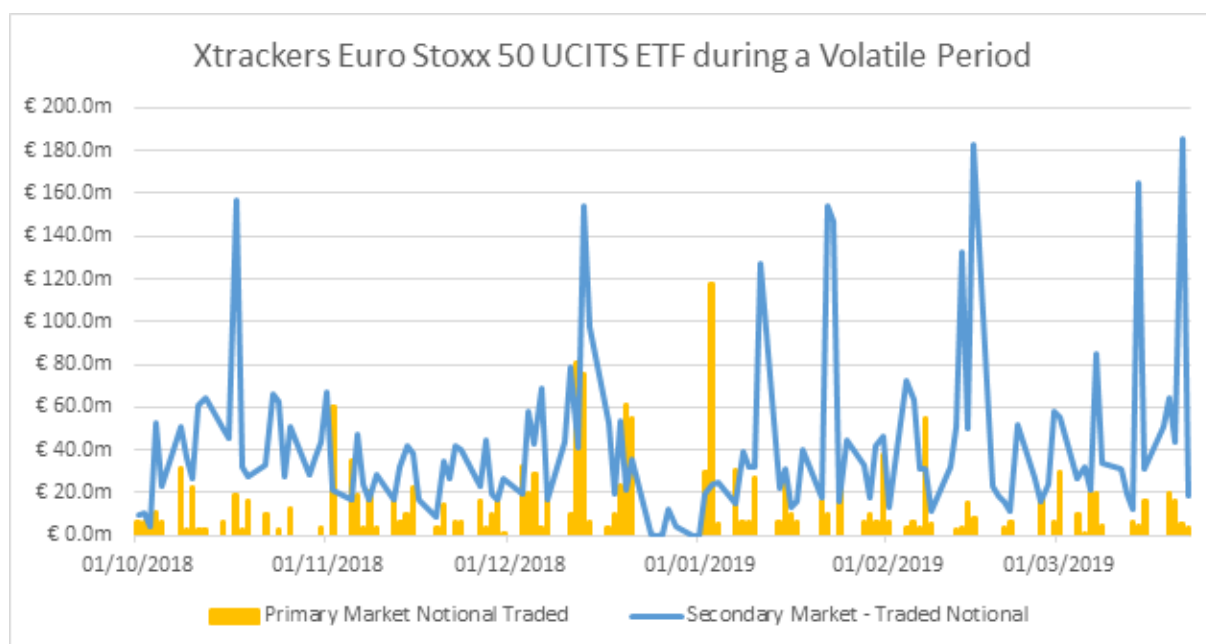
The following chart helps one better understand the interactions between the secondary and the primary market. It illustrates an evident “lag” between the time of a significant secondary market spike (i.e. on the 7-8 June 2018 on the back of news related to a critical chapter for a future Brexit deal) and the time APs made recourse to the primary market to execute creations/redemptions, as represented by the spikes of the blue-coloured vertical bars recorded on the 21 and 27 June 2018. Underlying this observed lag is the fact that throughout it the APs assigned to deal in the ETF’s underlying securities were able to almost exclusively rely on their existing inventory of FTSE 100 stocks in exchange for the ETF’s shares. In other terms, their intra-day exposure between the 7-8 June and the 21 June has been almost entirely managed through the active use of their own books with hardly any underlying market dealing.



Source: Bloomberg

The evidence from the above charts allows us to decisively confute the common misconception that stresses in the secondary market would automatically transmit to the primary market, while additionally challenging APs' roles to the point where these would confront solvency concerns. It demonstrates that for large ETFs, especially those tracking well-recognised market capitalisation indices like the FTSE 100, significant volatility spikes have been completely absorbed by the secondary market with no effect on the trading, or on the pricing, of the ETF's underlying stocks. In addition, even where primary market activity is observed, there is no immediate causal relationship between such activity and secondary market flows. The illustrated lag demonstrates that the over thirty active APs for the iShares FTSE 100 UCITS ETF (ISF) maintain a degree of discretion as to when they choose to deal creations/redemptions, based on the size of their respective stock inventories and on their hedging capabilities. This further explains why APs are not necessarily trading an ETF's underlying cash components in concomitance with episodes of secondary market volatility. Consequently, the narrative of the ECB study linking large ETF redemptions to the resilience of APs via immediate "feedback loops", as well as the ensuing concerns about AP counterparty risks and dire financial stability outcomes, are not supported.

We now turn to consider the evidence presented by a more concentrated European ETF portfolio, replicated "synthetically", over trading days where secondary market ADV and volatility were significantly higher than the ADV recorded over normal market conditions: the Xtrackers Euro Stoxx 50 UCITS ETF (1C).



Source: DWS & Bloomberg

Similar to the previous charts, the primary market notional traded is the absolute difference obtained by netting opposite trades of the ETF's underlying securities on the back of creations/redemptions on a given day. The secondary volumes are the ADV of the ETF's shares exchanged between market participants and include both listed and OTC traded volumes. The chart captures the relationship between the secondary and primary market ADV over a very volatile end to 2018 and start to 2019, during which the European economy faced considerable headwinds, including the U.S. Federal Reserve's monetary tightening cycle, escalating rhetoric over trade wars, Brexit and Italian political instability, combined with slower than expected growth in Germany. As a result, secondary market activity - represented by the light blue line in the chart - was buoyant throughout Q4 2018 and Q1 2019, in concomitance with a subdued primary one. This was helped again by the AP's active management of their inventories. To note is that, firstly, across the observation period referred to in the above graph, the secondary-to-primary traded notional volume amounted to a ratio of 3.4:1, thus demonstrating far greater liquidity in the secondary market *versus* the primary one. Secondly, the Xtrackers Euro Stoxx 50 UCITS ETF counted as many as seventeen active APs, all independently taking to the primary market with widely ranging frequencies (i.e. some only once, whereas another executed a creation/redemption forty-six times), proving there are considerable differences in each AP's capacity to deal the ETF's shares against securities/cash and *vice-versa*.

As demonstrated, increased secondary market trading does not always directly result in activity in the primary market. Often, secondary market trading can be managed from existing inventory held by market participants (APs and/or market-makers) or from offsetting flows from existing holders. In the second case, as previously noted, investors looking to sell ETF positions can find natural buyers in turn looking to obtain exposure to the underlying index at a lower price. Visible once again are considerable "lags" between secondary and primary market spikes, suggesting that heightened volatility does not provoke a frenzy of creations/redemptions to occur at the level of the ETF's APs.

While preparing this comment paper, corporate Members of EFAMA have provided it with several other relevant examples drawn from their own ETF ranges, all which corroborate the above evidence. In conclusion, we believe that the view that ETFs could give rise to a potential systemically relevant contagion channel is unfounded.

These results are not limited to equity ETFs. The box below demonstrates comparable dynamics and results for fixed income ETFs, which by nature, are undoubtedly less liquid than in the equity space.

Fixed income ETFs: Are there grounds for a liquidity scare?

From a general perspective, it is widely recognised that fixed income instruments are less liquid than equities. Unlike equities, fixed income instruments trade far less frequently, thus making their last traded price far less reliable for investors looking to trade an issuers' debt, corporate or sovereign. Another key distinction is that most fixed income trades still occur OTC in the form of a bilateral trade between two counterparties at an agreed price, unlike equities which trade publicly on an exchange. Moreover, fixed income instruments represent a far more diversified asset class than equities, where the former typically come with varying maturities and coupons from the same issuer. Given the singular mechanics of an ETF's arbitrage mechanism, concerns around its resilience are therefore justified. The following examples illustrate how a few fixed income ETFs have fared during recent episodes of market volatility. We deliberately choose ETFs tracking emerging market bond, as well as corporate high-yield indices, cognisant of the regulatory concerns particularly with respect to these fixed income segments.

The February 2018 VIX spike

Despite heightened volatility over the course of multiple sessions at the beginning of February 2018, the secondary market liquidity for a broad range of UCITS bond ETFs was comfortably higher than the year-to-date (YTD) average, with a healthy secondary-to-primary market ratio.

Of the fixed income segments that witnessed most price action during this period, we take the BlackRock iShares J.P. Morgan \$ EM bond UCITS ETF (IEMB) as an illustrative example, displaying secondary market volumes averaging about US\$150 mn/day during the week of 5-9 February (totalling US\$741 mn for the week). Gross primary market activity in this ETF during the same period stood at US\$192 mn, i.e. at a nearly 4:1 secondary-to-primary market ratio, proving that the ETF's market-makers were largely able to match buyers and sellers of emerging market debt risk without needing to create/redeem fund shares.

| IEMB Daily Trading Activity | | |
|------------------------------------|---------------------------|-------------------------|
| Date | Secondary, US\$ mn | Primary, US\$ mn |
| 5-Feb-2018 | 112 | 22 |
| 6-Feb | 116 | 25 |
| 7-Feb | 237 | 7 |
| 8-Feb | 66 | 33 |
| 9-Feb | 211 | 105 |
| Total | 741 | 192 |

Source: Bloomberg

The May 2018 scare for corporate bond markets

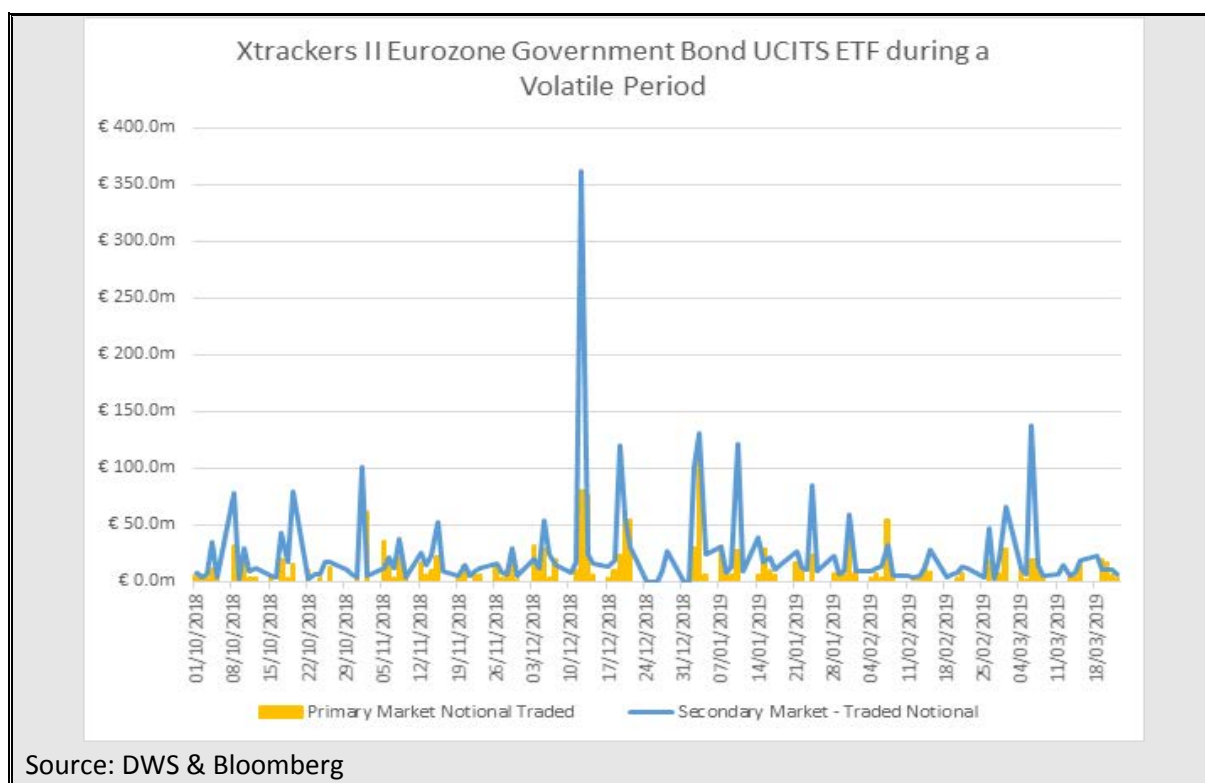
The month of May 2018 saw the return of volatility to global markets, affecting both equities and bonds, on the back of political developments unfolding in Italy, with the country facing the prospect of a sovereign rating downgrade, amid concerns of a new round of national elections and threats to the country's continued membership in the Eurozone. Eurozone corporate credit markets were consequently left particularly exposed. During the week of 28 May-1 June 2018, secondary market trading in the BlackRock iShares Euro High Yield Bond UCITS ETF (IHYG) gathered a record pace with investors relying on the ETF as a macro-credit vehicle to trade Eurozone credit markets. With the considerable exposure of the IHYG ETF to the Italian market (i.e. approaching 19% of the combined portfolio weight), secondary market volumes averaged more than €150mn per day for three consecutive days and totalled over €600mn for the week). By comparison, the gross primary market activity in the IHYG ETF during the period stood at €100mn. The chart below displays a 6:1 secondary/primary market trading ratio and the absence of contagion effects are indicative of the fact that the IHYG ETF market-makers were yet again able to match buyers and sellers of Euro-denominated high yield credit risk with hardly the need to create or redeem the ETF's shares.

| IHYG Daily Trading Activity | | |
|-----------------------------|-----------------|---------------|
| Date | Secondary, € mn | Primary, € mn |
| 28-May-2018 | 75 | 25 |
| 29-May | 165 | 49 |
| 30-May | 152 | 29 |
| 31-May | 171 | 0 |
| 1-Jun | 57 | 0 |
| Total | 619 | 103 |

Source: Bloomberg

A volatile end to 2018 for Eurozone government bonds

At the close of 2018, on 13 December the ECB announced an end to its quantitative easing, opting nevertheless to maintain rates on hold due to persisting low economic growth in the Eurozone. Only a week later, the U.S. Federal Reserve announced its fourth successive rate hike for the year. The timing of these announcements provoked a sharp risk re-appraisal by Eurozone bond investors of their exposures, justifying a sudden take-up of secondary market activity for several ETFs tracking European sovereign bond indices. Among these, the Xtrackers II Eurozone Government Bond UCITS ETF (1C) (XGLE) witnessed a sudden surge in secondary market trading activity reaching an exchanged notional of over €361 mn on 12 December relative to a primary market notional of €80.5 mn, or in other terms, a secondary-to-primary market ratio of 5:1 which is consistent with our other findings above.



I.III The secondary market as a “proxy” for underlying price formation

Besides the liquidity considerations described above, we consider it important to highlight a third salient feature of ETF liquidity, particularly for those ETFs that track indices comprising traditionally less liquid asset classes, like fixed income. In view of this asset class’ natural characteristics, investors have realised that a fixed income ETF may serve as a better “proxy” to guide price discovery for the true fair value of a given basket of bonds they may either wish to hold or purchase.

It is especially in the fixed income space that an ETF’s price discovery feature materialises, precisely because of the less liquid nature of the underlying fixed income securities compared to equities. Since the global financial crisis of 2008, investors have witnessed several bouts of volatility as a result of exogenous shocks. These events have had a significant impact on the short-term liquidity of bonds, from corporate credit to sovereign ones. At a closer look, underlying the increase in secondary market activity observed for the fixed income ETFs above is the fact that investors have increasingly turned to ETFs as an expedient means to determine the price of an individual bond. This tends to occur at a moment when, under prevailing liquidity conditions, the security is not trading, or its last available price is no longer reliable⁷. As fixed income ETFs are therefore better able to efficiently derive, or approximate, the price of an individual fixed income index component, more investors – among which even large institutional fixed income traders – will use such ETFs, even when they do not already own the underlying bonds.

⁷ In this regard, we note that the ETF’s share price, as determined by actual transactions matching buyers and sellers, can move very quickly to reflect the prevailing conditions, instead of having to rely on end-of-day NAV calculations on previously known bond transactions or fair value estimates. The latter inevitably risk being “stale” and tend to adjust to new market levels only through a (sometimes significant) lag.

I.IV OTC liquidity

A final consideration relates to venues for ETF liquidity. It is known, at least before the coming into force of the MiFID II transaction reporting requirements, that approximately 70% of all ETF traded volumes in Europe were transacted “over-the-counter” (OTC). Although this figure will naturally diminish in the coming years, the fact that significant volumes may still be transacted OTC implies that risks from a disorderly unwind by “long” holders of ETF shares – often cited in central banks’ narrative as a systemic flashpoint – can count on an additional layer of liquidity, which until recently remained “non-lit” and comparatively more expensive.

A noteworthy development worth mentioning in this respect is an attempt by a few European ETF providers, working in partnership with the financial data provider Bloomberg, to offer investors an early version of a proper “consolidated tape”. Announced in December 2018, a new data feed called the “Bloomberg ETF Aggregate Volume” aims to increase transparency around European ETF trading and builds on an increased demand for clarity around ETF liquidity following the entry into force of MiFID II in January 2018. The feed covers all European listed ETFs and ETPs and incorporates trades taking place on regulated exchanges and OTC platforms. Such industry-led initiative favours all participants in the European ETF market, especially investors through greater transparency and competitive pricing.

II. Counterparty Risk

The ECB study's concerns around an ETF's potential counterparty risks are not new. Already between 2011-2012, the community of European market supervisors within ESMA considered addressing these via an appropriate set of recommendations, addressing *inter alia* counterparty exposures stemming both from swap-based (or "synthetic") and physical replication ETFs. We believe that the resulting 2012 *Guidelines on ETFs and other UCITS issues* (as revised in August 2014) deserve greater examination against a fair part of the ECB's concerns⁸. In June 2013, IOSCO also published its own global *Principles for the Regulation Exchange-Traded Funds*, mirroring some of ESMA's recommendations more broadly⁹.

As a second general remark, we disagree with the ECB's underlying assumption that such risk is inherent or unique to ETFs. Whether swap-based or physically replicating an index, European ETFs are no different from ordinary collective investment schemes in the type of counterparty exposures they may take on. This fact was recognised by ESMA when, in the process of formulating its 2012 *Guidelines*, it opened the sections related to counterparty exposures from OTC derivatives and efficient portfolio management techniques (i.e. securities lending) to all UCITS funds. Therefore, the potential counterparty risks described in the ECB study should not be unique to ETFs.

In the following sub-sections, we isolate a few of the most relevant citations on counterparty risk from the ECB's study and challenge the underlying assumptions.

II.I Putting counterparty risks in context

With regard to the concerns around potential counterparty risks, stemming either from a synthetic index replication model, or from securities lending common to physical replication, we first challenge the ECB's conclusions with respect to large redemptions:

First, similar to standard investment funds, large redemptions as a response to increased counterparty risk would lead to forced selling of collateral securities by the ETF. This is likely to take place in the context of a market downturn as counterparty risk would become relevant in generally stressed market conditions, and may put further downward pressure on already falling asset prices. Second, increased counterparty risk and ensuing redemptions could have feedback loop dynamics for the counterparty itself. For counterparties relying on ETFs as a source of funding, large redemptions may exacerbate the initial stress. Counterparties using the swap or ETF exposure itself as a hedge for their trading positions may be suddenly more exposed to the risks they were aiming to hedge.

⁸ Please refer to ESMA's *Guidelines on ETFs and other UCITS issues* (ESMA/2014/937) of December 2012, as revised in August 2014; available at the following link.

⁹ Please refer to the IOSCO Final Report on *Principles for the Regulation of Exchange Traded Funds* (FR06/13), published in June 2013; available at the following link.

On the contrary, we note:

- A. **The causes behind counterparty risk remain unexplained.** Assuming it is the counterparty's viability as a functioning business the market would be concerned about, no attempt is made to explain how such circumstances would come about, nor is the probability for such event to occur considered. It appears the ECB assumes an exogenous shock "out of the blue", opening an existential threat to a large bank-owned dealer acting as the sole counterparty to a total return swap *vis-à-vis* an ETF. We believe the likelihood for such an event deserves closer attention, at least in terms of explaining its plausibility and considering that European synthetic ETF providers can and do appoint more than one counterparty (see *infra*);
- B. **Redemptions of ETF share classes reflect changes of investors' views of underlying securities, not of a counterparty's solvency.** The ECB assumes that a market downturn is likely to bring the counterparty's resilience and solvency into question. Investors would consequently sell their shares more fiercely if they believed the counterparty's credit quality was weakening, or its business was confronting major headwinds (e.g. poor quarterly earnings, a financial scandal, etc.). In reality, investors care primarily about their exposure to the underlying securities through the ETF. When markets correct, some investors choose to trade their exposure away, regardless of the counterparty's financial soundness. The latter's ability to continue to honour the terms of the swap contract is thus uncorrelated to the ETF index and to underlying assets investors no longer wish to be exposed to. As a result, we maintain there are no "feedback loop dynamics";
- C. **ETFs as sources of funding?** The ECB refers to an old BIS working paper (No. 343) published in April 2011 by S. Ramaswamy, entitled "Market structures and systemic risks of exchange-traded funds"¹⁰. According to the author, through a total return swap, an AP would have access to a cheaper source of funding by receiving the returns off a substitute/collateral basket swapped with the ETF provider in exchange for the total return of the chosen ETF index. In this regard, the allegation is that the AP would use the ETF as a funding vehicle to warehouse less liquid securities, thereby making it easier to meet Basel III (LCR) requirements. Moreover, it would also bear the tracking error risk once the price of the ETF share begins diverging from the chosen index¹¹. In the event of strong selling pressure in the secondary market, generating a greater tracking error, the AP would consequently need to dispose of the less liquid collateral to continue hedging its exposure *vis-à-vis* the ETF. Were the cash markets for such underlying collateral assets to seize up, the APs own risk management functions could become compromised.

The BIS paper's conclusions are not convincing considering current industry practices. First, European synthetic ETF providers use APs and swap counterparties as two distinct service entities. Whereas there are instances where the AP and the swap counterparty may coincide, the prevailing practice among providers is to rely on a multi-swap counterparty model, where most of the designated swap counterparties to a given ETF are third-party entities which do

¹⁰ Please refer to S. Ramaswamy "Market structures and systemic risks of exchange-traded funds", BIS working paper (No. 343) published in April 2011; available at the following link.

¹¹ See Ramaswamy, page 8 et seq.

not act as APs in parallel. Use of such “open-architecture” set-ups carry multiple advantages for the ETF provider, among which that of diversifying risk and improving the terms of the swap agreement.

In accordance with collateral schedules, unlike assumed in the BIS paper, it is not the swap counterparty, but the ETF provider that dictates – based on pre-set guidelines - the types of securities aimed at collateralising the fund’s daily swap exposure instead. The assumption that APs would therefore be the sole counterparties to a swap agreement, while also being free to choose which securities to deliver as collateral to the ETF provider, is not confirmed by the prevailing market practices, thus blunting the arguments and conclusions of the 2011 BIS paper.

As an additional and final consideration, we note that the use of total return swaps is not exclusive to ETFs. Therefore, the ECB’s related concerns around the potential failure of a swap counterparty should not be framed as a risk unique to the sole category of synthetic ETFs.

II.II Swap counterparties and exposure collateralisation under EMIR

The following paragraph from the ECB study introduces more conjectures around a supposedly ideal number of swap counterparties to an ETF in the synthetic replication model:

While counterparties are typically connected with many ETFs, most ETFs rely on a single counterparty. In addition, counterparties tend to be connected with ETF issuers through ownership links as they often belong to the same parent bank. Increases in counterparty risk of one of the important institutions in the network would thus directly affect many ETFs.

In this respect, EFAMA firstly observes that there are several instances of important European ETF providers which implement a synthetic replication model through a multi-swap counterparty platform, including as many as seven different non-affiliated counterparties to the total return swaps with the provider’s own ETFs. Secondly, this removes another common misconception, whereby the swap counterparty is always assumed to coincide with the AP¹².

Other ETF providers opt for a synthetic replication model with fewer swap counterparties, justifying such choice in terms of better swap pricing, lower tracking error, and ultimately “best execution” for the investor as a legal requirement of the EU MiFID II framework *per se*. Insofar as ownership links are concerned, as we explain in the following sub-section II.V., these should not be exaggerated in light of the numerous regulatory safeguards intended to discipline commercial relationships between an ETF provider and other intra-group (bank) entities.

¹² By way of example, an AP can place a creation/redemption order which will be routed to a swap counterparty. One European ETF provider currently relies on as many as seven different counterparties (i.e. Deutsche Bank, Morgan Stanley, Goldman Sachs, HSBC, Société Générale, J.P. Morgan and Barclays) so that in the event of default by anyone of these parties, the overall balance of the ETF is distributed across different providers and where any one can be transferred to another swap counterparty where necessary. For an RFP, another large European provider considers as many as fifteen counterparties over a period of more than 6 months.

Regardless of the number of swap counterparties, it is more important for the ECB to appreciate that underpinning each swap counterparty appointment is a robust due diligence and counterparty selection procedure, commonly known as a Request for Proposal (RFP), whereby swap counterparties are screened and ultimately chosen on the basis of pre-defined legal and economic criteria. For instance, a key requirement will be for all swap counterparties to have an ISDA (International Swaps and Derivatives Association) Master Agreement in place. This contract, agreed between the ETF provider and the swap counterparty, sets out the standard terms and mutual obligations governing the OTC swap performance and payoff, offering legal certainty and protection for the parties involved. From an economic standpoint, the selection process for choosing the swap counterparties is a formal one, based on the most competitive swap spreads in best interest of an ETF's investors and provided all other criteria are satisfied.

Internal rules to additionally manage the swap agreement would also deserve emphasis, as for instance, the re-setting of the swap (whereby counterparty risks are reduced to zero at the end of each day), the concomitant implementation of the UCITS counterparty risk limits of 10%, as well as the monitoring of the substitute basket and collateral quality requirements *as per* ESMA's December 2012 *Guidelines*.

In addition, we wish to stress regulatory requirements in terms of swap exposure collateralisation for trades that are not subject to the clearing obligation through a central counterparty (CCP), as per the European Market Infrastructure Regulation (EMIR) 648/2012 of 4 July 2012. Recognised as "financial counterparties" under the EMIR definitions, UCITS ETFs and their counterparties are obliged under the Delegated Regulation 2016/2251 – effective since February 2017 - to implement appropriate procedures and arrangements to measure, monitor and mitigate operational and counterparty credit risks. Central to such measures is the need to ensure a timely, accurate and appropriately segregated exchange of collateral (i.e. initial and variation margin) by way of title transfer or by way of pledge, depending on the terms of the agreement between the counterparties, as well as collateral eligibility requirements.

Initial margin is exchanged at the start of the transaction, subject to concentration limits, and is recalculated frequently in order to mitigate both the current and potential future exposure resulting from one counterparty's default. It is intended to be managed and segregated accordingly into bankruptcy-remote custody accounts held with central banks or with qualified credit institutions meeting all the terms of CRD/CRR. We also underscore that initial margin cannot be re-pledged or reused¹³. As to variation margin, this is constituted by eligible cash or securities that the counterparties will mutually deliver to reduce their respective net daily mark-to-market exposure to zero. Such transfers are subject to a daily minimum threshold of €500.000, although counterparties can agree to smaller amounts¹⁴.

The securities which may be posted as collateral – both for initial and variation margin - will essentially be bonds issued by certain OECD country governments, central banks, international organisations,

¹³ Please refer to the Commission Delegated Regulation (EU) 2016/2251 of 4 October 2016, and in particular, Articles 4, 9, 10, 12, 13 19 and 20 thereof.

¹⁴ Please refer to the Commission Delegated Regulation (EU) 2016/2251 of 4 October 2016, and in particular, Articles 4, 8, 9, 11 and 19 thereof.

corporate entities, equities included in major indices, as well as units of UCITS meeting certain conditions. Haircuts will be additionally applied to such securities (except cash). In view of addressing some of the alleged contagion concerns between ETFs and their swap counterparties described in the ECB study, we care to highlight that Article 4(2) of the Delegated Regulation expressly prohibits the receiving ETFs to accept securities issued by the swap counterparty, or issued by any other entity which is part of the latter's same group.

For the economy of our comment paper, we refer the ECB to the detailed provisions of the Delegated Regulation 2016/2251 implementing EMIR, as well as to UCITS ETF prospectuses, offering investors ample disclosures in terms of managing counterparty risks in light of the more recent EU Securities Financing Transactions Regulation (SFTR) 2015/2365, applicable as from July 2017¹⁵.

Swap-based ETFs in more detail

More specifically, for swap-based or synthetic ETFs, there are two in reality two swap agreements between the ETF and the swap counterparty, i.e. an index swap and a basket swap. Whereas the former is concluded to offer the ETF the exact return of the chosen index, the latter swap involves the outright sale of a portfolio or "basket" of securities – *alias* the "substitute basket" which mirrors the composition of the tracked index - to the ETF by the swap counterparty. Also known as the "unfunded" swap model, the ETF in this case becomes the true owner of the basket of securities which are held on behalf of and in the fund's name by a third-party depository/custodian. Accordingly, in the unlikely event of the swap counterparty's default, the ETF has immediate access to the substitute basket¹⁶.

As anticipated under section I.II.I above, the swap-based ETF's portfolio coincides with the substitute basket and is expected to comply with the applicable regulatory requirements, beginning with those of the UCITS Directive. In this respect, a large European ETF provider offers the following details to illustrate by way of example some of the regulatory constraints related to the portfolio's structuring:

For equity ETFs:

- Diversification constraints require that the UCITS "5/10/40" diversification rule be applied, with no issuer constituting over 10% of the portfolio and with the sum of issuers over 5% kept under 40%¹⁷. Moreover, in certain jurisdictions, for the ETF to be eligible for personal stock saving

¹⁵ In particular, we refer to the pre-contractual and periodical disclosures for all UCITS ETFs under Articles 13 and 14 of Regulation EU No. 2015/2365 (SFTR), including a general description of the SFTs/total return swaps used and related rationale, the proportion of AuM used for SFT, the criteria used to select counterparties, the details on collateral and collateral management (including concentrations), a description of risks associated to SFTs/total return swaps, the details on safekeeping of assets and collateral subject to SFT/total return swaps, the restrictions on re-use of collateral if applicable, and finally, the UCITS' policy on costs for each type of SFT/total return swap and data on related returns.

¹⁶ Alternatively, although less common, there also exists a "funded" swap replication model, whereby the counterparty's collateral is held under a pledge arrangement (i.e. with no transfer of title) by an independent, third-party custodian in a segregated account on behalf of the ETF, but in the name of the counterparty. In this case, the consequences of the counterparty's default may be complicated by the chance that the defaulted counterparty's bankruptcy administrator could freeze the counterparty's assets and these would not be readily available to the ETF when needed.

¹⁷ Please refer to Articles 52 of the UCITS Directive 2009/65/EC.

schemes (*plan d'épargne en actions* or PEA), domestic rules require that the ETF hold at least 75% in EU-issued equities;

- Portfolio eligibility is strictly limited to the chosen index's components, or those included in representative large-capitalisation indices: e.g. Stoxx Europe 600, S&P 500, MSCI Japan, etc.;
- Excluded are stocks issued by the ETF provider's group bank parent, the provider's own stock, as well as those of any counterparty to a swap agreement with the ETF. Additionally, the ETF cannot invest in CFDs, certificates, or any structured products (e.g. ABS, CDO, CDS, etc.);
- Liquidity constraints require that the aggregated weight of each stock for the provider's whole ETF range must be below 3-times the Average Daily Volume recorded over the last three months.

For fixed income ETFs:

- Diversification constraints require that for corporate bonds, the UCITS "5/10/40" diversification rule be applied, with no issuer over 10% and the sum of issuers over 5% kept under 40%, as for equities. Regarding government debt instruments, the portfolio may hold even up to a maximum of 100% per issuer, with at least six bonds from the same issuer and with no issue exceeding 30%;
- Portfolio inclusion is limited to the ETF's chosen index components. For investment grade government and corporate bonds from OECD countries, these must have a minimum issue size of € 500 mn;
- Excluded from the portfolio are bonds issued by the ETF provider's group bank parent, the provider's own debt, that of any counterparty to the ETF, as well as CFDs, certificates or structured products (e.g. ABS, CDO, CDS, etc.).

At the ETF's launch, the swap counterparty will be required to trade and maintain the total return basket swap equal to the value of the index swap, both of which are marked-to-market and systematically re-set daily. Where the basket swap's value is less than the index value, the ETF will request the swap counterparty to post securities as margin to the fund to make up for the difference in value of the two swaps. Effectively, this ensures the exposures of both swaps are kept within the tight, pre-agreed limits and monitored daily. From an investor protection perspective, the basket swap provides a form of credit protection in the event of default by the swap counterparty, where the basket of securities can be liquidated by the ETF if necessary or transferred to another swap counterparty.

In sum, in addition to the ETF's substitute basket guarantee, intraday exposures equal to the difference between the value of the two swaps are collateralised, but in practice typically over-collateralised, by the exchange of daily margin requirements as per the EU EMIR regime¹⁸. Both the transfer of the substitute basket and margin collateral thus effectively ensure there is no contagion between the swap-based ETF and its counterparties.

¹⁸ For non-centrally cleared OTC derivatives as swaps, EMIR's variation margin rules oblige ETFs and their swap counterparties since March 2017 to exchange margin based on ISDA's "Variation Margin Protocol".

II.III Managing counterparty risks in practice

Analogous rigorous standards in terms of initial and ongoing due diligence apply also to physical replication ETF providers when choosing the borrowers looking to participate in their securities lending programmes. Here, the asset management company would appoint a securities lending provider (whether agent or principal¹⁹) to identify creditworthy borrowers, while also managing the associated risks (e.g. counterparty credit risk, loan-to-collateral correlations, collateral liquidity and its volatility, etc.) by adjusting the lending limits throughout the duration of the agreement²⁰.

Given the advantages for an ETF provider to work with multiple counterparties, especially from a liquidity, risk management, and best execution perspective, the following factors summarise what for a global ETF provider are the key considerations to guide the selection of its counterparties:

- The nature of the proposed transaction activity (i.e. for which securities and for which volumes?);
- The type of settlement and security delivery procedure;
- Whether the proposed counterparty settles transactions directly or prefers to use a correspondent;
- The ETF provider's own settlement risk tolerance levels *vis-à-vis* a proposed counterparty;
- The financial strength of the counterparty based on a review of its financials (e.g. excess of regulatory capital);
- For non-investment grade counterparties, these are required to clear through well-established clearing correspondents and are generally limited to short settlement trades.

Once selected, counterparties are monitored constantly to ensure they continue to meet the strictly prescribed standards for which they have been selected. The same ETF provider displays an integrated approach to monitor counterparty credit and reputational risk. Such approach hinges on a centralised function to monitor and assess counterparty exposures arising from both bilateral and centrally cleared products, including derivatives, types of mortgage-backed securities (MBAs), foreign exchange, financing trades (repo and securities lending), equities, fixed income securities and other forward-settling transactions. Exposures are dynamically adjusted to the financial strength of the counterparty, with an emphasis - *inter alia* - on regulatory capital.

II.IV Considerations around collateral

Envisaging the extreme case of a counterparty default, including that of a securities borrower, the ECB raises concerns associated with collateral quality, as follows:

¹⁹ In this regard, the ECB study only refers to “securities lending agent”, whereas a more subtle distinction is worthwhile. The latter consists in recognising that a securities lending provider can be appointed either as “agent”, where any risk of non-performance is borne directly by the securities lending client, or as a “principal”, whereby it is the lending provider (i.e. the principal) that fully bears the risk of non-performance and would consequently need to make the lending client whole.

²⁰ With regard to securities lending, please refer to BlackRock's *Viewpoint* “Securities lending: the facts” of May 2015; available at the following link.

Both synthetic ETFs and ETFs offering securities lending are typically over-collateralised. Collateral baskets often consist of liquid stocks and bonds. However, frictions may arise when dealing with collateral from defaulting counterparties. To obtain the original exposure, the ETF issuer might have to sell the received collateral in falling markets given that counterparties are more likely to default when markets are stressed. This may be particularly problematic when collateral exposures differ substantially from the exposure expected by investors, for example in terms of correlation with the broader market, or when the value of collateral is positively correlated with the performance of the defaulting counterparty. Similarly, terminating the fund by selling remaining securities could impact asset prices more broadly if the funds that are liquidated are large relative to either the market capitalisation of the funds' collateral assets or their trading volume.

We believe the concerns expressed in the paragraph are significantly mitigated by the daily collateral management practices which are not only customary to the ETF industry, but also derive from specific regulatory requirements. It is worth highlighting for the bulk of the (UCITS) ETF industry in Europe that ESMA's December 2012 *Guidelines* apply. Finding their rationale in a lively regulatory debate in the course of 2011-2012 around ETF replication models, the value of these *Guidelines* is to have (i) clearly listed UCITS collateral requirements, and (ii) harmonised the latter across OTC derivative and securities lending transactions ("efficient portfolio management techniques"). We would refer the ECB in particular to paragraph 43 of the *Guidelines*, listing the key criteria for collateral quality, including *inter alia*, liquidity, valuation, issuer credit quality, correlation (with the counterparty) and diversification.

In addition, we also recall the existence of margining OTC derivative trades under EMIR (as illustrated above in sub-section II.II), as well as the transparency-related provisions applying to repurchase ("repos"), securities lending agreements and total return swaps, under the more recent EU SFTR regime. As anticipated in sub-section II.II above, Article 13 and 14 of the SFTR deserve a particular reference in this regard, obliging the managers of collective investment schemes (both UCITS and AIFs) to inform investors on the use they make of securities financing transactions (SFTs) – including repos and securities lending – and total return swaps in their semi-annual and annual reports (Article 13) and in their prospectuses (Article 14). The SFTR regime complements these investor transparency requirements with collateral reuse obligations and detailed transaction reporting requirements to an approved EU-registered trade repository.

Unlike the ECB's position, the above collateral requirements ensure that no ETF counterparty, whether to a swap or a securities loan, is free to post the collateral securities it wishes to the UCITS ETF. Rather, these are dictated by the risk management team of the ETF sponsor and undergo considerable scrutiny based on the above pre-set, multi-dimensional ESMA criteria. The team reserves for the ETF the right to decline any security, especially those issued by the same counterparty. Where the above practices are adhered to and monitored constantly as part of an ETFs ordinary risk management, dealing the collateral of a defaulting counterparty under a rare and extreme scenario, proves frictionless.

Furthermore, unlike the ECB's position, to ensure that an ETF's received collateral withstands a sudden shock or a market correction leading to the (highly improbable) default of a counterparty, its composition should preferably not mirror that of the underlying index an ETF is tracking. It is important to note in this regard that the primary quality of collateral is for it to be liquid and readily disposable

to secure a claim. It should not replace a portfolio's assets. Moreover, as for a redeeming AP, the ETF provider will not automatically attempt to "fire-sell" collateral securities in the falling market circumstances the ECB describes. Such decision is best left to the experience and appreciation of an individual institution's trading, risk and capital markets teams based on whether the securities can be held also in view of a possible market rebound once the immediate effects of the shock have subsided.

II.V Intra-group affiliations should not be exaggerated

The ECB study considers that counterparty concentration would be further exacerbated by intra-group affiliations, independent of the ETF replication model chosen (physical or synthetic). Accordingly,

The ongoing issue that many synthetic ETFs rely on a single derivative counterparty (see Chart C.3) is analogous to ETFs lending securities via a single lending agent. In a similar way, the affiliation with derivative counterparties is an issue that is also present in physical ETFs that employ affiliated lending agents. In addition, connectedness with the banking sector may imply contagion from or to banks in stress periods. Hence, ETF investors continue to be exposed to counterparty risk, which is exacerbated by counterparty concentration, warranting continued monitoring from a financial stability perspective.

Recalling the prevailing cited practice of using multiple swap (non-affiliated) counterparties to avoid excessive concentration, but mindful of the economic advantages related to "best execution" when APs or swap counterparties are affiliated to the ETF provider in the synthetic replication model, we would focus on disputing the study's analogous assumptions extended to affiliated securities lending providers, especially in light of existing (UCITS) conflict of interest and related disclosure rules.

Accordingly, Article 23 of the Delegated Regulation 2016/438, specifying the "operating conditions" requirements of the UCITS Directive with regard to conflicts of interest, would oblige the ETF provider as the management/investment company to adopt policies identifying potential conflicts of interest arising from group links, as well as to take reasonable steps to avoid such conflicts. Where such conflicts cannot be avoided, the management/investment company needs to manage, monitor and disclose its intra-group dealings to investors in the (UCITS) ETF.

ETF providers should therefore manage their conflicts of interests where group entities act in multiple capacities. Such potential conflicts and resulting risks should be appropriately disclosed for investors to make informed decisions. The risks associated with group entities acting in multiple capacities can also be mitigated, especially by relying on multiple APs or counterparties outside the group, thereby also increasing competition. Ultimately, however, it should be up to ETF providers to manage the benefits versus the costs of having multiple non-affiliated APs and counterparties in view of an efficient balance. When questioning intra-group affiliations of an ETF provider, the ECB should additionally consider that risks emanating from potential conflicts of interest should be at least measured against a couple of important facts.

First, there are specific regulatory requirements at the heart of the EU MiFID II regime that require "best execution", whereby an investment management company (as a UCITS-licensed ETF provider) must take sufficient steps to obtain the best possible economic outcome for clients when executing an

order²¹. Such general requirement translates into a rigorous selection process for ETF providers with respect to the appointment of one or more APs able to more efficiently execute creation/redemption orders, or of OTC counterparties to more efficiently price a swap, in the interest of the holder of the ETF shares. Considering the diversity of a typical ETF providers product range, spanning several asset classes and trading in different time zones or currencies, APs may determine that the underlying assets may not always be available, or easily available, for trading. As a result, an AP's geographical presence, infrastructure and technological capabilities become critical over those of a competitor when needing to execute a creation/redemption in the most cost-efficient manner.

Second, but still related to “best execution”, is the fact that a broad choice among potential swap counterparties may sometimes not be available for the type of investment exposure a client may be seeking. Yet, it is important to offer client choice. For instance, there exist only one or very few counterparties able or interested to receive exposures to certain “frontier” markets, or even to certain types of indices (e.g. commodity, strategic, self-indices). It is important for the ECB to understand there is a necessary trade-off between servicing clients at an increased cost, as opposed to not serving them at all by investing their capital in certain areas of the market.

In light of existing regulation and prevailing market practices, we believe that the ECB's concerns related to concentration risks, as exacerbated by intra-group affiliations, are overplayed, while also not adequately considering “best execution” requirements.

II.VI Evidence from fund flows over periods of heightened volatility

In this section, we challenge the results of the empirical analysis of the counterparty risk channel, as presented in the ECB study under Box B. Using regression analysis, the model attempts to draw the relationship between ETF flows (first on the secondary and then on the primary market), CDS spreads of identified ETF counterparties (as a proxy for counterparty risk) and the VIX (as a proxy for market-wide volatility) for a sample of some 721 Euro-area synthetic ETFs, representing about 90% of the synthetic ETF market share as of April 2018, over an observation period between January 2011 and May 2018. Results from the ECB's observations conclude that under stressed market conditions, as marked by spikes in the VIX index, average CDS spreads for the identified counterparties have also risen in tandem, while prompting increased selling pressures at first in the secondary market, only to then affect the primary market by prompting APs to redeem.

In light of these findings, EFAMA has the following key reservations:

- The observed selling dynamics in the secondary market have other causes that are wholly unrelated to CDS spreads. Episodes of market volatility bring investors to re-assess their allocations and trade their exposures. The evidence of the recent market corrections presented in the previous sections confirms that net selling of ETF shares in the secondary market is

²¹ Please refer in this regard to Article 27(1) of MiFID II (Directive 2014/65/EU) in conjunction with Article 64 of the Delegated Regulation (EU) 2017/565 listing the “best execution criteria”. Key factors on which “best execution” is to be assessed are its price, costs, speed, likelihood of execution and settlement, size, nature, or any other consideration relevant to the execution of the order.

dampened by concomitant buying of the same shares, thus mitigating the effect of the correction in the immediate aftermath of a VIX spike;

- These findings appear inconsistent with those of the ECB’s first regression analysis under Box A, where in times of market stress, APs were found to withdraw. Under Box B, instead, the ECB finds that under stress counterparty risk is heightened (with higher CDS spreads) and that consequently the secondary market reacts by selling which then forces the same dynamic onto the primary (where APs then do respond). In sum, it is not clear if APs are ultimately responsive or not;
- The VIX and the AVG CDS curves in Chart A of the study are also not always moving in tandem as the findings conclude. For instance, the volatility spike in early 2018 surprisingly sees the AVG CDS curve remain flat, unlike the identified positive correlation between the VIX and the AVG CDS suggests. It is fair to say that both are not always positively correlated, suggesting the regression’s results are not as robust as the study concludes;
- The ECB’s analysis is not complete, in the sense that it omits secondary market flow dynamics following the immediate aftermath of a correction; moreover, it fails to account for the share of secondary to primary average daily volumes (as explained under Section I above). In fact, there is ample evidence demonstrating that market shocks have been largely absorbed by the liquidity-enhancing feature of secondary market trading;
- Redemption pressures in the secondary market do not necessarily prompt an AP to redeem with the ETF provider. Even where this occurs, such transaction is either (i) settled in-kind, i.e. the ETF provider cancels the excess shares and returns the redemption basket back to the AP; or (ii) settled in cash, whereby in exchange for the excess shares, the AP receives their value in cash from the ETF provider. In both cases, at the primary market level, there may in fact be no trading activity for the underlying securities at all. This fact would therefore dismiss the study’s concerns related to financial contagion spreading through “dynamic feedback loops” from the secondary to the primary market;
- Finally, left with a basket of securities following a redemption with the ETF provider and in the presence of a volatile market, a legitimate question could be how the AP would choose to deal the securities. In such circumstances, the AP may for instance opt to hold the securities temporarily on its books as part of its inventory, use the securities to hedge other positions or to create another ETF’s shares if the latter are trading at a premium, deliver the securities to a client looking to establish a position, or even sell these into the market at an acceptable price²². However, the AP will not automatically attempt to liquidate assets at a loss to only undermine its own capital position and forego better opportunities.

III. Is (more) tailored regulation need for European ETFs?

In the fourth and last section of the ECB study, a series of open questions are raised with regard to existing EU regulations and how these may not be sufficient to contain some of the identified potential risks. Activities deemed to be “regulation-free” would be the functioning of the arbitrage mechanism,

²² To note is that where a redemption is settled in-kind and in the event an AP chooses to sell the ETF’s underlying securities to lock-in the arbitrage gain, the impact of the sale on the underlying’s price formation will be negligible, especially where the reference index is a broadly diversified one counting several hundreds of securities.

as left to the sole commercial incentives of the market participants involved, as well as the ETF share creation/redemption mechanism. The ECB's consequent recommendation is for the existing regulatory frameworks to be either further enhanced to address liquidity and counterparty risks, or alternatively overhauled by an "ETF-specific regulatory framework".

In response to these proposals, we have the following reservations:

- The identification of liquidity and counterparty risks in the study are not proven and certainly not sufficient to justify the second far-reaching recommendation. More rigour is essential when considering net secondary market flows during episodes of heightened volatility, as well as the ample evidence of the liquidity-enhancing role of the secondary market at precisely such times;
- Despite the valuable references to the EU EMIR and SFTR regimes aimed at managing counterparty risks, we believe ESMA's 2012 *Guidelines* deserve greater credit, especially with regard to their requirements for collateral when received by the (UCITS) ETF. We also contend there is need for consideration of the conflicts of interest rules governing intra-group links under the UCITS framework. Moreover, in relation to the arbitrage mechanism, the fact that its operation and resilience depends on the commercial incentives of APs and market-makers does not by itself justify further regulation. This is reinforced by the fact that there are no convincing grounds to argue that such incentives, or existing regulation, have failed. Our same conclusion applies to APs' creation/redemption processes;
- An important omission of the study is the role of circuit-breakers, or alternative volatility control mechanisms, that are implemented at the national exchange level. There are instances where, as on the Paris Euronext, ETF trading is automatically suspended for 30 seconds if the ETF's price diverges beyond pre-set trading bands of $\pm 1.5\%$ or $\pm 3\%$ relative to its intraday NAV (iNAV). Other exchanges in Europe (e.g. the London Stock Exchange, Deutsche Börse and Borsa Italiana) implement analogous systems. Instead of the iNAV, automatic circuit breakers are activated when the ETF's execution price "hits" maximum variation limits against either one of two reference prices (a dynamic or a static reference price). Unlike for Euronext, however, trading on the latter exchanges is not suspended altogether, but changes into a volatility auction system with the participation of several market-makers, implying the latter would still be able to propose quotes;
- In relation to the ECB's proposal for an enhancement of the current frameworks applicable to ETFs, EFAMA commends and supports the efforts made over the last two years by prominent European market supervisors, notably of the French *Autorité des Marchés Financiers* (AMF) and of the Central Bank of Ireland, to improve their understanding of the ETF product and broader ecosystem. Cognisant also of the ongoing thematic review of its 2013 *Principles for the Regulation of Exchange Traded Funds* by IOSCO, we believe that any enhancement to existing frameworks in Europe should refer to global regulatory developments and be strictly evidence-based;
- The ECB study also refers to the U.S. Securities and Exchange Commission's recently proposed rule (Rule 6c-11) as an all-encompassing dedicated framework, understood to qualify as a precedent for a future "ETF-specific regulatory framework" in Europe. Such parallel is ill-founded, as the intent of the U.S. supervisor is rather to introduce only partial amendments to the existing framework, essentially limited to (i) making consistent and streamlining authorisation requirements by removing the existing obligation for ETFs to apply for "exemptive reliefs" when

coming to market; and (ii) requiring additional disclosures regarding ETFs' trading costs, including bid-ask spread information, for investors;

- As a final note, we remain concerned by the fact that (UCITS) ETFs tend to be viewed by the ECB as opaque structures, warranting increased disclosures. On the contrary, EFAMA believes investors already receive world-leading levels of information, especially around counterparty risks, as disclosed in countless examples of ETF prospectuses and accompanying KIIDs. Alongside the investor disclosure documents mandated under the UCITS regime, providers in Europe have in fact taken additional steps since the ESMA 2012 *Guidelines* to disclose more frequent and daily information on their respective websites. Sampling four of Europe's most popular ETF providers, we find that on average (even retail) investors can easily obtain the following information directly on the companies' respective websites:
 - Full portfolio (substitute basket) holdings, with related weights, asset/sector/country breakdowns, as well as currency information;
 - Index information, with links to the index providers' own website and documents to explain index composition and underlying methodology in detail;
 - Trading information, including identity and number of exchanges, number of trades, volumes, currencies and tickers, near real-time pricing and historical prices, actual and historical NAV data, as well as for AuM and index levels;
 - Identity of counterparties to OTC swaps and/or securities lending agreements (each including the ETF's related exposure);
 - Securities held as collateral;
 - Historical performance;
 - Fees and expenses; and
 - Costs and charges.

We firmly believe that investors, especially of the retail type, are therefore amply informed of potential risks inherent to European ETF products, regardless of the chosen index replication method, and benefit from the far-reaching investor safety standards established by the UCITS regime. This is further reinforced by other key pieces of EU legislation referenced in this comment paper.

One aspect that in our view would merit greater attention by regulators and investors alike is the often-encountered confusion between ETFs (i.e. the UCITS-regulated collective investment fund products in Europe) and other exchange-traded products (ETPs) which fall outside a comparable regulatory framework and where the underlying is not a diversified portfolio, but rather a single debt instrument, a certificate, a commodity, etc. In this respect, already a good number of EFAMA's Members have called for an industry-wide adoption of a classification system for ETPs, intended to help investors more readily assess the risks inherent to each type of ETP, as well as aid regulators to focus their efforts at protecting investors and guarding financial stability.

Conclusion

EFAMA has considered the ECB's findings with great interest. Although recognising the ECB's growing and legitimate interest in the multiple realms of market-based finance, our own analysis of the potential financial stability concerns raised in the ECB's study arrives at opposite conclusions.

As to the potential liquidity risks that would be triggered by sudden market corrections and upticks in volatility, we find the ECB has not sufficiently considered the existence of a deep and liquid secondary market for ETF shares, able to trade – per day and especially under stressed market conditions - multiple times the volume of the ETF's individual components. Examples drawn from recent episodes of market volatility for a series of equity and fixed income ETFs confirm the role of the secondary market as an effective “shock absorber” to mitigate short-term selling pressures. In parallel, we also find the ECB has not duly considered the incentives of APs when operating at the juncture of an ETF's primary and secondary market. Instrumental to ensure an ETF's adequate liquidity are also some key determinations that are made by ETF providers prior to the product's launch. Lastly, aided by some real market cases described in the Annex to our comment paper, we argue how especially for fixed income investors, ETFs have been not only resilient, but instrumental to the determination of price formation over brief periods of heightened volatility.

Regarding the alleged counterparty risks, these should be placed into a “real world” context, i.e. acknowledging some important operational realities (e.g. the split between APs and OTC swap counterparties, use of multi-swap counterparty platforms, rigorous counterparty selection procedures and ongoing risk management vetted both by internal Boards and national supervisors, etc.), combined with the detail of existing regulations, among which key pieces of the EU's financial *acquis*. Chief among these are the UCITS-related ESMA *Guidelines* of 2012, addressing counterparty risks from OTC derivatives and securities lending activities, and appropriately containing recommendations for all UCITS, as the implied risks are not exclusive to ETFs. Conflict of interest rules, derived from the UCITS Directive and implementing delegated regulation, also add a legal safeguard against alleged excesses of intra-group affiliations. Other important pieces of EU legislation to be considered when attempting to realistically assess counterparty risks in ETF (as for any collective investment scheme) include the MiFID II regime (precious for the reinforced notion of “best execution” and its derived influence over the open and rules-based appointment of ETF counterparties), EMIR (especially in terms of collateralising intra-day swap exposures) and SFTR (in terms of greater transparency through enhanced reporting requirements).

On whether more regulation in Europe for ETFs is necessary, our comment paper resolutely maintains it is not. Absent convincing evidence as to any present or impending market failure that would justify immediate legislative action, we believe a more prudent approach would be to first consider issues emerging from the ongoing IOSCO thematic review of ETFs. Any further step would necessarily need to involve the European ETF industry via an open and transparent consultation process and be led by ESMA and national market supervisors with experience from directly supervising this industry.

ANNEX – Recent examples of ETF trading suspensions and their causes

We take the opportunity of this comment paper to draw evidence from a series of recent market events and illustrate how temporary suspensions to certain ETFs' liquidity were prompted by factors beyond the control of the individual ETF providers. These exogenous factors, as the following examples portray, coincided with impaired price formation affecting several underlying index components, in turn the result of volatile trading sessions, trading suspension and market closures. Such evidence presents a strong case against further regulation of the ETF industry.

By design, ETFs rely on designated APs to arbitrage between a primary and secondary market, thereby allowing the price of the ETF to remain in line with the value of the underlying basket portfolio as represented intra-day and in turn mirroring the composition of the chosen index. Changes in the value of the ETF price relative to its intra-day value may prompt an AP to either sell (create) or purchase (redeem) the ETF's shares on the secondary market, only to later exchange them in-kind or in cash with the ETF provider. Such mechanism ensures that an AP (i) realises a profit by being "long" the value of the declining asset (ETF share or basket portfolio) and "short" the value of the appreciating one; and (ii) nets out its own balance sheet exposure at the end of the trading day. Consequently, bouts of market volatility large enough to impair the pricing of a large part of the single ETF basket components would not only affect the quality of the index replication, but also the ability of the AP to hedge its own risk. Where this occurs, the price of the ETF share can depart significantly from its underlying intra-day value to a point where an AP, having determined that the cost of hedging has become prohibitive, ceases all new creations/redemptions until market conditions normalise. The following examples demonstrate how and why these extreme events may occasionally materialise, although their occurrence is at the same time a valid demonstration of the fact that – unlike often assumed – ETFs may at times enhance the overall liquidity of a market by becoming the pricing point of reference.

I. The volatile opening of the NYSE trading session in August 2015

During a volatile trading session on 24 August 2015, some 327 ETFs listed on the NYSE were halted a total of 1116 times, as the stock market experienced its biggest drop since 2008. Amidst extreme market uncertainty and although many stocks suffered trading halts as well, much of the attention was on ETFs, due to their significant price divergence from the value of their underlying baskets.

The opening trading session on the morning of 24 August was heavily influenced by concerns tied to the Chinese economy which had already led to steep declines in both Chinese and European indices. Anticipating a volatile trading session, the NYSE opted for a manual opening of the session, i.e. relying on human specialists to match the order flow instead of electronic algorithms, with the consequence that pricing information on listed stocks trickled through only very slowly²³. This in turn had a knock-on effect on the valuation of several ETFs, while the secondary market had already begun actively trading. Without the means to accurately price and trade securities, the arbitrage mechanism temporarily broke-down for several ETFs, leading to large price disconnects between the value of their shares and those of their underlying baskets. Steep declines in these ETFs' share prices occurred,

²³ By 9:35 a.m., only 65% of the S&P 500 components were open for trading.

dropping an average of 30% from the previous day's close, eventually triggered trading halts²⁴. Although such declines were short-lived and ETF prices began rising back in line with the underlying stocks once conditions began to normalise, this correction was additionally also hindered by more trading halts as prices found their way up.

Put into perspective, these events – although useful to illustrate possible impediments to ETF-specific mechanics – were nevertheless of a very mild and non-systemic nature. In fact, the 327 ETFs affected by the halts represented only approximately 20% of the ETF market (or US\$ 433 billion out of over US\$ 2 trillion in terms of AUM), with the remaining 80% continuing to trade as normal. Moreover, the episode was short-lived in that by 10:30 a.m. most of the affected ETFs were trading back in line with their underlying basket values.

Another valuable consideration is around the unintended consequences of market infrastructure rules that functioned well as they had been intended to. The trading halts on the single stock index components had been effectively implemented and certainly avoided larger price swings away from their fundamentals. Inevitably though, through a confluence of factors, these halts further complicated the valuation of the ETFs' underlying basket which had already been impacted by the manual opening of the trading session just earlier. Designated APs for the affected ETFs could thus no longer pair-off their risk (resulting from their "long" position in the rapidly declining secondary market for ETF shares, exacerbated also by a growing momentum of sell-orders) by intervening in the primary market (to "short" the securities constituting the ETFs' baskets).

A final consideration concerns the fact that those affected ETFs momentarily observed their value trade like any other individual listed security, in the absence of their supporting valuation of the basket of underlying stocks.

II. The closure of the Athens Stock Exchange in June 2015

At the height of the Greek debt crisis in the summer of 2015, the Athens Stock Exchange announced its closure on Friday, 26 June. The following Monday, a European ETF provider offering an ETF tracking the performance of the 20 largest companies by market capitalisation listed on the Athens Stock Exchange notified to its investors that subscriptions and redemptions of the related units would be suspended and once no longer able to accurately calculate the fund's underlying NAV. Trading of the ETF was suspended shortly thereafter also on the exchanges of Frankfurt, Milan and Paris.

Soon, the fact that individual Greek stocks were no longer trading, affected other providers whose products were also dependent, although to a lesser extent, on the same underlying valuations. Recourse to alternative valuation techniques (e.g. reference to the last available price, use of fair value accounting, etc.), supported by the continued trading of another ETF on the U.S. NYSE Arca venue,

²⁴ On average, bid-ask spreads in the affected ETFs on the morning of 24 August were nearly 40-times as wide as those of the previous morning, with market depth very thin. By comparison, the rest of the ETF universe (approximately 80%) saw spreads about 4-times as wide when compared to the previous morning. For further insights, please refer to "Perfect Storm Leads to ETF Trading Halts", *Credit Suisse* Trading Strategy note by Victor Lin *et al.* of 30 September 2015.

allowed investors to continue trading their Greek exposure until 3 August when the Athens Stock Exchange re-opened²⁵.

This Greek ETF example is to be appreciated as a “live” case to demonstrate that even in circumstances of very poor or absent liquidity, ETFs are able to continue trading by estimating the intrinsic value of their underlying basket components. Naturally, the price for the enhanced or “resilient” liquidity they provide – demonstrated typically by significant upticks in secondary market trading volumes *vis-à-vis* the primary market – comes in the form of larger bid/ask spreads quoted by APs/market-makers and greater tracking error, at least until full price transparency is restored under normalised market conditions.

III. The Chinese A-Share trading suspensions in July 2015

The first week of July 2015 witnessed a tide of Chinese corporations announcing trading suspensions on the country’s two largest exchanges of Shanghai and Shenzhen, following dramatic drops in the value of their respective composite indices, and ultimately involving well over half of all listed securities²⁶. Inevitably, such suspensions led ETFs tracking the performance of these main indices, or holding relevant company names in their portfolios, to hold “frozen” shares. Nevertheless, shares of these ETFs continued to trade in the secondary market, with their volumes soaring in response to the underlying market volatility, as they became the sole means for investors to estimate the true level of the market and trade their exposure to Chinese equities accordingly²⁷.

Analogous to the Greek episode described above, the fact that Chinese equity ETFs continued to trade despite a substantial portion of their underlying portfolios being unable to transact, reflects the specific role of these instruments as price discovery vehicles²⁸.

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²⁵ The U.S. ETF provider was able to derive the underlying values for its ETF by investing in American Depositary Receipts (ADRs), Global Depositary Receipts (GDRs), and in companies “economically tied to Greece”, as per its investment policy outlined in the relevant prospectus. In this regard, we care to note that the ETF, by acting as the closest proxy to the actual value of the chosen index in this instance, acted as a price discovery vehicle for the wider market until trading on the Athens Exchange resumed. Analogously, a similar situation occurred during the Arab Spring of 2011 when the National Exchange of Egypt closed for two months. Investors continued to trade their exposure to Egypt through the shares of another ETF, bidding up the price on hopes of a more open economy following the domestic revolution (only to see the price plunge when the exchange re-opened).

²⁶ To note is that, following the initial plunge of the two main indices, the domestic regulator (CSRC) intervened artificially support the market by banning large listed company shareholders from selling their stakes over an initial six-month period. This occurred in concomitance with significant purchases of the depreciating stocks by the national central bank and state-sponsored brokerages in an effort to avert further selling and irreparable damage to the economy’s reputation.

²⁷ Please also refer to the *Financial Times* article “China’s market-tracking ETFs roiled by share suspensions”, published on 12 July, 2015.

²⁸ As an example of ETFs being used *in lieu* of futures, please refer to the article “ETFs set to capture historic cost savings over futures, according to Source”, published on ETF Strategy on 8 December 2015; available at the following link.