TOBAM*
CORE INVESTMENTS

DIVERSIFICATION DASHBOARD

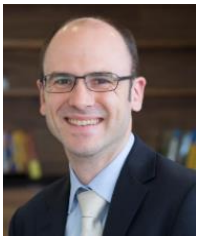
Research Insights from Outside the Box

April 2021

Buy-Side Concentrations and the Impact on Alpha in Credit Markets

Original research, actionable insight

A note from the Portfolio Management desk…

In 2020, Central banks took a huge leap down the road of direct market intervention. All developed market central banks added corporate bonds in their toolbox direct purchasing QE programs. This acknowledges the key role corporate credit plays as a monetary policy transmission channel.

As of the end of Dec 2020, the ECB and the Fed held respectively €250bn and $46bn of corporate bonds on their balance sheet. While these numbers are not as massive as the Government debt totals, the Fed's implementation of these monetary policy interventions was unique to say the least. They bought close to 6% of the total US corporate bond ETF AuM and hence outsourced the execution to BlackRock. This highlights how investors/buy-side participants in credit markets have evolved over the past 10 years.

Apart from the new monetary policy tools, the corporate bond market environment significantly changed after the Great Financial Crisis (GFC). There has been a move towards a highly concentrated buy-side structure with the top 5 asset management firms commanding more than 27% of the Global Credit markets AuM. This is mainly due to regulations which made the capacity of the usual liquidity providers shrink dramatically. This made investors increasingly turn to ETFs. This increased importance of ETFs in the market and created a new type of very big and important buy-side investor. An investor that does not have the same investment objectives and has very different incentives when compared to traditional buy-side investors.

Most of the discussions regarding the emergence of dominant players on the buy-side that do not manage the assets for their own balance sheet have revolved around potential conflicts of interest and market power[1]. We felt the need to explore how this new buy-side structure affects price discovery mechanisms and the active management industry. Both are relevant to keep financial markets healthy and working well.

In this Dashboard, we look deeper into:

- why has buy-side concentration mostly been a byproduct of passive ETF investing success and,
- to what extent did it have an impact on credit markets liquidity and active managers ability to generate alpha in a scalable way.

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Deputy Chief Investment Officer

Axel Cabrol, CFA
Head of Fixed Income

[1] As an example of the current US debate around such questions see for instance Graham Steel, "The New Money Trust: How Large Money Managers Control Our Economy and What We Can Do About It", American Economic Liberties Project

out-of-the-box thinking

noun. Thinking that moves away from established convention to incorporate alternative perspectives and which sometimes leads to novel ideas and solutions.

Executive Summary

The corporate bond market Buy-Side structure

- Buy-side concentrations are often overlooked as they are difficult to objectively measure, it is, however, one of the key features of our industry that investors should have in mind as illustrated below
- The buy-side of **the corporate bond market is highly concentrated in a few hands**, both on the ETF and active managers side which reflects more intense competitive pressure
- amongst investment funds, **the top 5 asset management firms "command" more than 27% of the Global Investment Grade and of the Global High Yield markets AuM**
- Bond ETFs are even more concentrated operating currently as an oligopolistic market with **3 players representing 90% of the AuM**

The very special role of passive investors in bond markets

- Corporate bond ETFs' success has benefitted from the reduction of dealers' ability to provide liquidity after the GFC to represent now **25% of Investment Grade and 12% of the High Yield AuM**;
- ETFs central role in liquidity management is best visible when one looks at their **share of the total flows** into the asset class: **more than 50% of IG inflows and 30% in HY over the past 2 years**;
- **ETFs liquidity impacts underlying securities trading volumes** – they mechanically increase volume and volatility of the most liquid bonds;
- As they replicate debt-weighted indices' biases, ETFs are unfit to collect the full risk premia and suffer from **structurally lower long term Sharpe ratios**;

Did corporate bond ETFs kill the alpha stars?

- **ETFs success increased the low-cost competitive pressure** on active managers and forced them into a race for scale, which **in turn increases buy-side concentration**;
- **Large active funds tend to converge towards passive investing** with regards to the risk allocated to bond picking or market timing skills as performance drivers;
- In order to collect the full risk premium of the asset class, **investors should rethink their credit investment processes** to tackle the formidable breadth of credit markets in a scalable way;
- **TOBAM's Maximum Diversification approach** that relies on a quantitative measure of diversification **do provide a rational solution to overcome such a challenge**;

Introduction

Credit markets have fundamentally changed since the Global Financial Crisis (GFC). Regulation tried to avoid excessive risk taking of financial intermediaries, which limited their capacity to keep providing market liquidity. Simultaneously, low interest rates and central bank bond buying inflated corporate bond issuance which made liquidity facilities more of a need than ever before.

Many market participants have turned to investments into ETFs as replacement of traditional ways of finding liquidity. The fact that ETFs are intra-day traded instruments invested into a large number of securities that track an index is often used as an argument that these instruments would be liquid. This trend has contributed to an enormous increase of AuM of a small number of very big managers that are actually not invested in corporate bonds on their own behalf.

We explore in this study, the change of the structural characteristics of the corporate bond market buy-side and their potential consequences on the market environment. We highlight both ETF liquidity benefits and costs in terms of long-term Sharpe ratios and how passive growth impacted alpha generation on the active managers' side.

Passive investing is usually put forward by its proponents as innocuous for the price discovery mechanism in the market. However, we argue that this is not the case in corporate bond markets due to these funds focusing on the most liquid portion of the corporate bond market since they need to keep their portfolios much more liquid than the average investor has to. Furthermore, the fact that passive managers do not have the leeway to allocate away from certain issuers or risks since their actions are index replication driven causes market concentration to swell with flows.

Additionally, we highlight that large funds tend to converge towards passive investing with regards to the risk allocated to bond picking or market timing skills as performance drivers. Besides, we identify tendencies of a preference for consensual behavior amongst active managers.

The corporate bond market Buy-Side structure

Key take-aways:

- Buy-side concentrations are often overlooked as difficult to objectively measure
- It is, however, one of the key features of our industry that investors should have in mind: amongst investment funds, the top 5 asset management firms "command" more than 27% of the Global Investment Grade and of the Global High Yield markets AuM
- Bond ETFs are even more concentrated operating currently as an oligopolistic market with 3 players representing 90% of the AuM

For many years now, credit markets have notoriously been concentrated in terms of issuer risk with the Financials sector in IG (app.15%) and the Energy sector in HY representing more than 20% of the risk of each of these markets globally (*see for instance our 2020 Dashboard "Signs if rising stress in the High Yield market"*). In this analysis we change the perspective from the issuer risk to the buy-side, i.e., we analyze who makes risk allocation decisions.

A more objective description of the current buy-side structure of the global corporate bond market is not as easy as one would think as bonds are sometimes directly held by non-financial entities or liability driven investors that do not necessarily report all their holdings publicly[2]. This is probably also one reason why most of the effects that we describe below and their consequences of the corporate bond market structure have so far been largely neglected.

As a first step, we use a Bloomberg database, which collects reporting data of financial entities' bond holdings and link these to each security. This allows us to build an aggregated view of all the investment management firms that are advising or directly holding securities included in the ICE-BofA Global Corporate and High Yield[3] indices. This universe of 2847 investment management companies covers 33% of the total Global IG index and 41% of the Global High Yield one. This first broad analysis confirms the intuition of a material concentration on the investor side: 45% of IG and 50% of HY markets are held by the top 10 investment firms.

In order to dig deeper and to disentangle the main reasons underpinning such an elevated concentration, we focus our analysis on the universe of funds. These are the most actively trading buy side entities and there is more data available for funds, allowing us to conduct a more in-depth analysis.

As corporate bonds are indeed eligible investments for many other fixed income strategies, we have to consider a universe that goes beyond corporate bond focused funds. For the sake of completeness, we therefore include also the so-called "Aggregate" strategies along with corporate bonds focused ones. Moreover, note that we differentiate between ETFs and Active Funds, which we slice into Investment Grade vs High Yield.

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[2] *As per the US Federal Reserve Board Flow of Funds statistics, for instance, investment funds amount to close to 30% of the corporate and foreign bonds assets held by US entities. Insurance companies and credit unions are the largest owners of such assets with a 3.7.5% share of the total as of end of Dec 2020.*

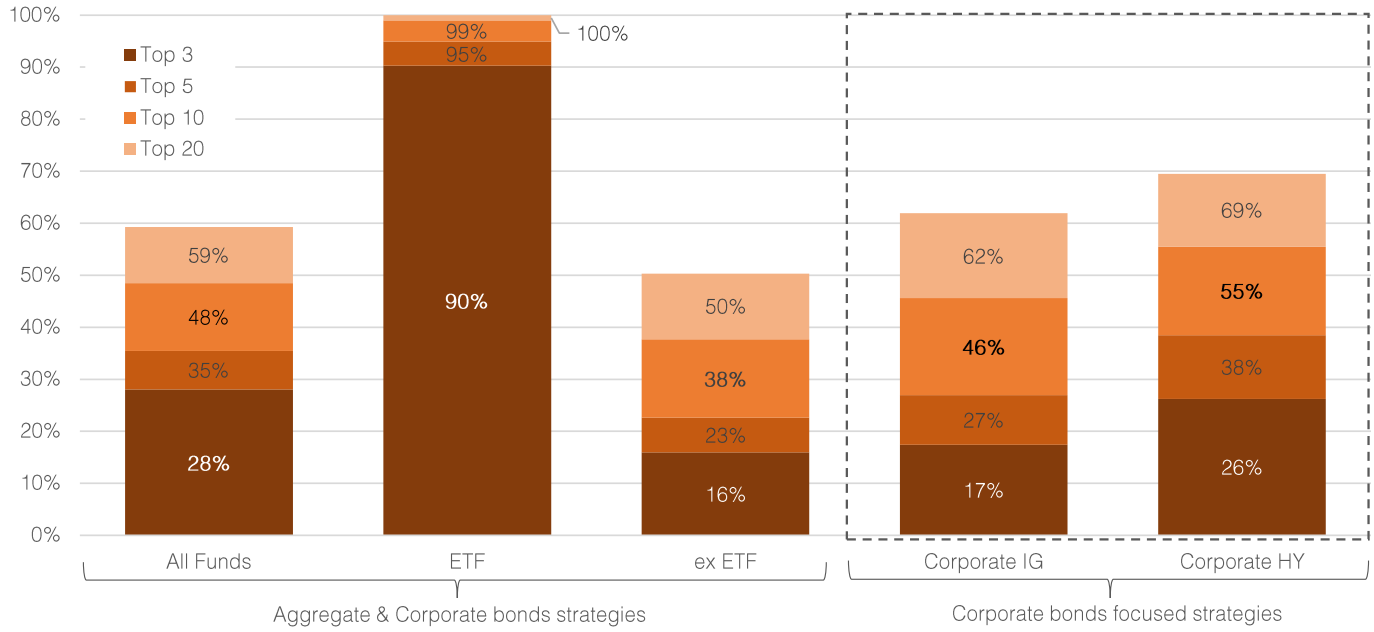
[3] *This method is based on end of 2020 reporting data and excludes broker dealers and other entities that do not report holdings on a yearly basis.*

Focusing on funds only makes the buy-side concentration even more visible: as highlighted in Figure 1 **the top 3 management companies represent 28% of AuM** even in the largest universe considered (a blend of Aggregate and Corporate).

Digging further into the sub-universes does not improve diversity:

- most impressively, Figure 1 highlights one of the key drivers of buy-side concentration in the corporate bonds' world: 90% of corporate ETF assets are managed by only three companies.
- Amongst corporate bonds active strategies split by rating class, the **top 10 investment firms manage:**
  - **46% of the active corporate IG focused funds;**
  - **55% of the actively managed corporate HY funds;**

Figure 1: AUM concentration amongst management companies by type of fund Dec 2020



Source: Bloomberg, TOBAM – Statistics aggregated from a total of 7606 fixed income funds focused on fixed income "Aggregate" or "Corporate" bonds strategies in hard currencies (CAD, CHF, EUR, GBP, JPY and USD) with more than $50m AuM. Total AuM for this fund group amounted to $5.4trn as of end of December 2020. The chart above provides two different splits of this same universe: ETFs (mostly passive strategies as active ETFs are a very minor part of the universe) vs Active on the one hand and on the other hand a focus on Corporate focused funds being either IG or High Yield.

As passive investing instruments, ETFs focusing on the same universe are by essence highly substitutable products. Moreover, the cost structure - mostly fixed costs – creates positive returns to scale. Such characteristics are those of oligopolistic market structures, where a few players end up dominating the market. This is exactly where we stand with 3 asset managers now accounting for 90% of the Fixed Income ETFs' AuM.

Why do we see such a high buy-side concentration? The answer boils down into two intertwined phenomena: the recent rise of bonds ETF on the one hand and the concentration in large funds on the active management side. We will explore further each of these phenomena in the next two sections.

The very special role of passive investors in bond markets

Key take-aways:

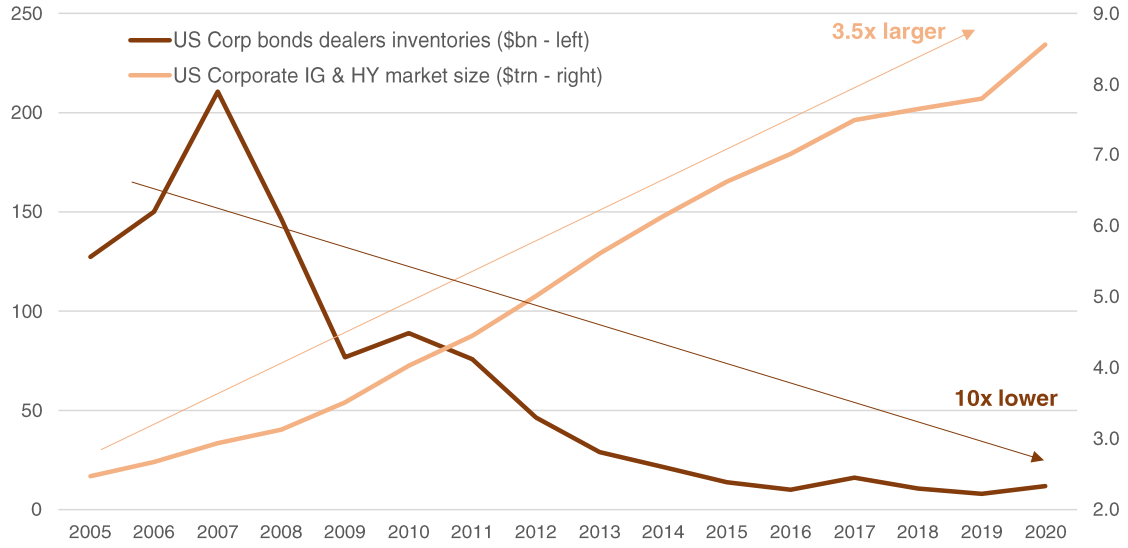
- Corporate bond ETFs' success has benefited from the reduction of dealers' ability to provide liquidity after the GFC. They now represent 25% of Investment Grade and 12% of the High Yield AuM
- ETFs' central role in liquidity management is best visible when one looks at their share of the total flows into the asset class: more than 50% of IG inflows and 30% in HY over the past 2 years
- ETFs' liquidity impacts underlying securities trading volumes – they mechanically increase volume and volatility of the most liquid bonds
- As they replicate debt-weighted indices' biases, ETFs are unfit to collect the full risk premia and suffer from structurally lower long term Sharpe ratios than their respective benchmarks

Whatever one might think of passive investing or ETFs as a vehicle, it seems fair to say that this market is currently operating in an oligopolistic structure whose potential impacts on price formation, liquidity and of course the active management industry cannot be ignored.

Even before central banks started to use Corporate Bond ETFs, credit market liquidity challenges have been one of the main reasons behind the rise in AuM of Fixed Income ETFs. To better understand this, one needs to be aware that credit markets are very diverse with many heterogenous instruments and issuers with a low level of price transparency. Price discovery is therefore more difficult than for instance in equity markets, which explains why market liquidity is a real challenge in corporate bond markets.

Historically, dealers were the main liquidity providers through significant balance sheet allocations to corporate markets. However, after the GFC, more stringent macroprudential regulation on the banking sector limited the capital allocated by dealers to corporate bonds market making. At the same time, interest rates reached record low levels as a reaction to the economic consequences of the GFC, which induced many companies to issue new debt. As a consequence, as highlighted in Figure 2, while over the last 10 years the corporate bond market size was multiplied by 3.5x, dealers' inventory decreased 10x fold.

Figure 2: US dealers corporate bond inventory and USD corporate market size Jan 2005 - Dec 2020

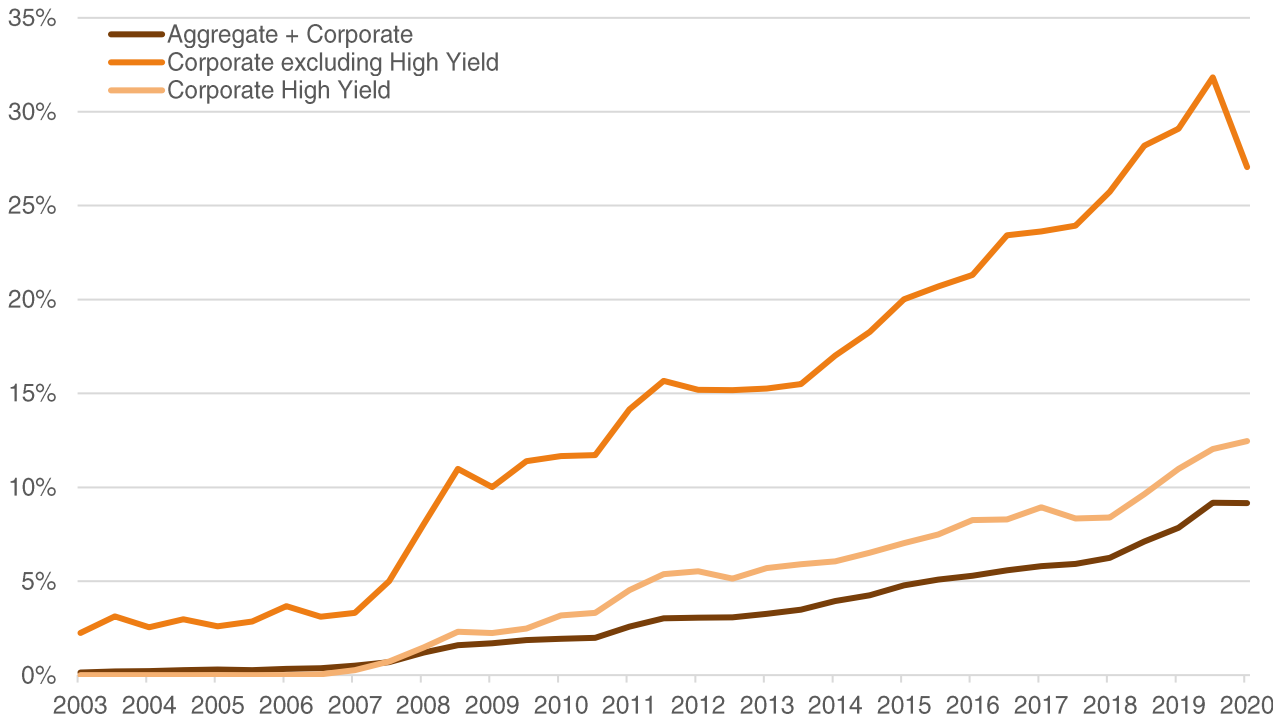


Source: Deutsche Bank Securities Inc – US Credit Strategy chartbook

Even if the ETF share of overall fund industry's AuM started its uptrend before the GFC, it really accelerated in the aftermath of the crisis. As visible in Figure 3:

- ETFs amount to 9% of the overall funds in our analysis (including the so-called aggregate strategies)
- slightly more than 12% of High Yield focused funds are ETF.
- More than 25% of Corporate IG focused funds are invested through ETFs.

Figure 3: AUM share of passive funds (ETFs) in fixed income fund universes by strategy Dec 2003 - Dec 2020

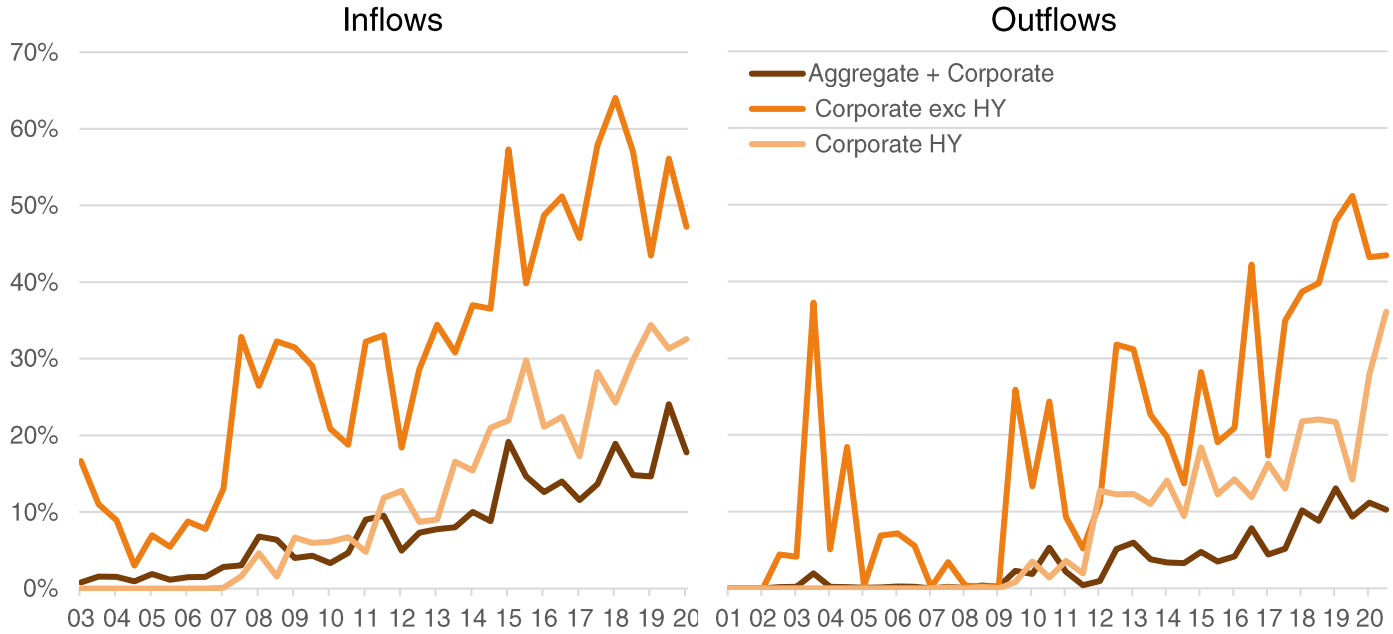


Source: Bloomberg, TOBAM – Statistics aggregated from a total of 7606 fixed income funds focused on fixed income "Aggregate" or "Corporate" bonds strategies in hard currencies (CAD, CHF, EUR, GBP, JPY and USD) with more than $50m AuM. Total AuM for this fund group amounted to $5.4trn as of end of December 2020.

The rise of ETF investing in the corporate bond market is largely driven by two key features: ETFs provide investors with an efficient replication of broad indices and their exchange traded feature, which alleviates issues of price transparency and enhances accessibility to a broad set of investors. Building tradeable common pricing factors such as indices helped price discovery of single bonds instruments, facilitated hedging and thus lowered frictions in the market.

ETFs were therefore one instrument to circumvent the impact of the dealers' capital drain and are currently the main liquid instruments available to a wide variety of investors to manage credit exposure. The Federal Reserve decision to include these instruments in the realm of its pandemic related QE programs is a form of acknowledgement of this reality: corporate bonds' liquidity highly depends on ETF trading conditions.

Figure 4: ETF share of USD fixed income fund flows
Jan 2005 - Dec 2020



Source: Bloomberg, TOBAM – Statistics aggregated from a total of 7606 fixed income funds focused on fixed income "Aggregate" or "Corporate" bonds strategies in hard currencies (CAD, CHF, EUR, GBP, JPY and USD) with more than $50m AuM. Total AuM for this fund group amounted to $5.4trn as of end of December 2020. Flows are computed on a monthly basis first and ETF flow shares are computed on a quarterly frequency

Figure 4 illustrates the special role of ETFs in tackling the corporate bonds liquidity challenge showing that their share of overall funds flows is far in excess of their share of AuMs as these vehicles are often used to adjust the overall exposure. Over the past two years, ETF funds have amounted to:

- more than 20% of the inflows amongst the aggregate and corporate bond strategies
- 30% of inflows and around 20% of outflows in High Yield
- More than 50% of inflows and around 45% of outflows in Investment Grade

Most of the time, subscriptions or redemptions in corporate bond ETFs are managed between the authorized participants (AP) and the fund asset manager in kind[4] through the use of a narrow basket of bonds. As argued by BIS's K. Todorov in a recent paper detailing the underlying mechanism of bond ETF arbitrage[5], these instruments do contribute to improve the overall corporate bond market liquidity and provide some shock absorbing features that ensures ETF can live through market stress.

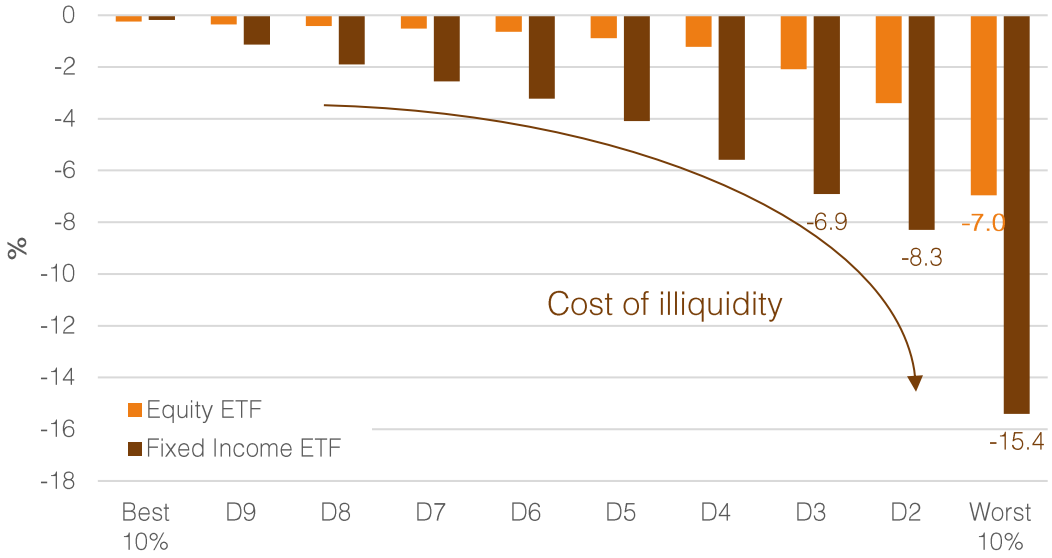
In Figure 5 we have split the US ETF Equity and Fixed Income universes into deciles of maximum discount to NAV observed in 2020. The bar charts highlight the average discount observed by deciles: except for the most liquid decile comprised of Funds based on treasuries, Fixed Income ETFs appear 2x to 5x less liquid

[4] *That means, for instance, that the AP delivers a basket of bonds in exchange for shares of the fund in the case of a subscription. As this basket is only a subset of underlying ETF's securities, ETF flows create an arbitrage opportunity on the AP side.*

[5] *Karamfil Todorov (March 2021), "The anatomy of bond ETF arbitrage", BIS Quarterly Review, March 2021 pp. 41 ETF tend to trade at a discount or premium to NAV when the underlying securities slowly adjust to ETF flows and hence creates the ETF arbitrage opportunity.*

than their Equity counterparts. When illiquidity took its toll during the 2020 crisis, the 10% least liquid Funds (mostly EM debt, Muni's or High Yield focused) traded at a -15.4% discount to NAV on the Fixed Income side with less than half the impact on their equity counterparts (mostly EM or sector focused Equity ETF's). This dramatic state of liquidity, was the main reason underpinning the Fed's intervention in the corporate bond market in 2020.

Figure 5: Maximum discount to NAV in % observed in 2020 for US listed ETFs Dec 2019 - Dec 2020 – average by deciles



Source: Bloomberg, Universe of active equity and fixed income ETFs with AuM above $1bn as of end of Dec 2020.

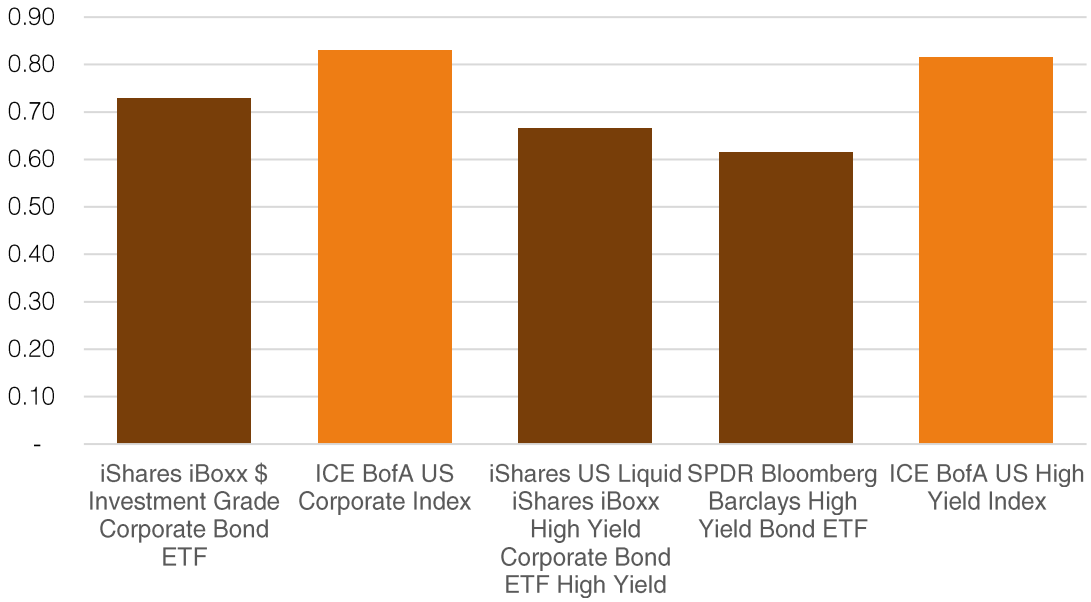
However, extreme market environments like the March 2020 crisis also remind investors that even though ETFs are exchange-traded instruments it doesn't guarantee that the underlying securities are immune to liquidity stress. To the contrary: the high concentration in AuM in ETF providers means that there is a high concentration in ETF replication algorithms, which tends to focus trading pressure on specific bonds. In turn, these bonds trade more often and incur more volatility as well as higher cost of liquidity when ETFs are under selling pressure.

Such a mechanism tends to directly affect the underlying bonds' traded volumes as well – translating into higher traded volumes for bonds that are typically used by ETFs (the supposedly more liquid market segment with big issuance sizes) and more volatile prices for these bonds when there are significant ETF flows. As an illustration, during March and April 2020 the average daily volume of bonds held in the largest US High Yield ETF (the iShares HYG) was 5x higher the general market average[6].

ETF bonds tend to trade more than the rest of the market under stress. Also due to inflows these bonds typically trade at a premium. They hence suffer from a reduced Sharpe ratio in the long run (Fig.6). Additionally, the focus of these ETFs on biased market cap weighted indices mechanically creates a demand for the largest issuers and hence reduces the market's ability to deflate risk concentrations.

[6] As per TRACE data, in March and April 2020, the average par traded volume of bonds included in the HYG iShares US Liquid High Yield Corporate Bond ETF reached $17.2m/day, while the average of the ICA BofA US High Yield index stood at $3m/day which is 5x lower. The same metric was 1.9x higher for JNK and 1.7x higher for LQD.

Figure 6: 10yr Sharpe ratios for main corporate bond ETFs relative to broad indices
From Dec 2010 to Dec 2020 – weekly data



Sources: Bloomberg, ICE, TOBAM - please note that the Sharpe ratio reduction is not only due to the fees impact

From our point of view these instruments do not fit with long-term investors' objectives: as passive investments they are plagued with issuer risk concentration and their focus on liquid securities decreases long-term Sharpe ratios of these instruments beyond the mere impact of fees (see Figure 6).

Did corporate bond ETFs kill the alpha stars?

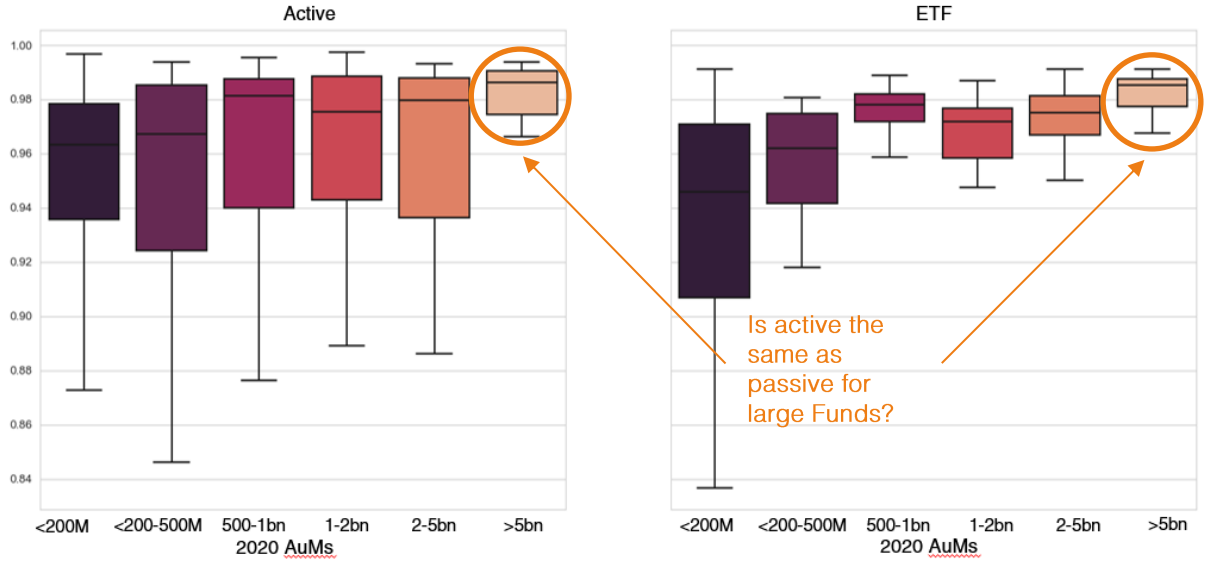
Key take-aways of this section:

- ETFs' success increased the cost competitive pressure on active managers
- The largest active managers tend to converge towards passive investment, allocating as little risk as passive ETFs to credit selection as a performance driver
- In order to collect the full risk premium of the asset class, investors should rethink credit investment processes to tackle the formidable breadth of credit markets in a scalable way
- TOBAM's Maximum Diversification® approach that relies on a quantitative measure of diversification do provide a rational solution to overcome such a challenge

The increased market share of passive investors has been putting cost pressure on the active managers. Beyond their low-cost nature, ETF scalability is a direct threat to the largest active funds, which are the dominant players in the space, with 38% of actively managed AuM in the 10 largest hands. We examine in more detail how active funds adapted to this new market context.

In order to quantify the scalability challenge active managers are facing, we firstly compare active and passive funds with respect to how much of their risk budget is dedicated to alpha generation. In order to quantify this, we regress portfolio returns on the five first principal components extracted from a broad set of fixed income indices (comprising treasuries and credit markets split by maturity, rating and sectors). The higher the R^2 the lower the risk budget allocated to credit selection or market timing. One would expect that active funds have a larger share of their risk dedicated to alpha generation than passive funds. This is precisely what Figure 7 confirms for most, but not for the largest funds: those funds with 2020 AuM above $5bn do not carry significantly more specific risk than ETFs of a comparable size.

Figure 7: % of variance explained by the 5 first PCA factors split by 2020 funds' AuM for active and passive funds
2016 – 2021, monthly data



Source: Bloomberg, ICE – Universe of active corporate bonds funds focused on corporate bond market with AuM above $50m as of end of Dec 2020 – alpha is estimated as the difference in performance between a portfolio of ETF funds and each active fund in the universe each year. Each replication is based on loadings of each fund's return regression on PCA factors computed on a set of 487 ICE-BofA indices over the same year over 5 years. The shaded boxes top and bottom lines show the first and third quartiles of the distribution with the inside line the median, whiskers report data points in last and first quartiles which remains in 1.5x the interquartile range relative to the shaded box.

Usually, credit selection driven alpha generation is based on the ability to identify mis-pricings at each instrument level. However, such mis-pricing opportunities cancel out on average and is not scalable.

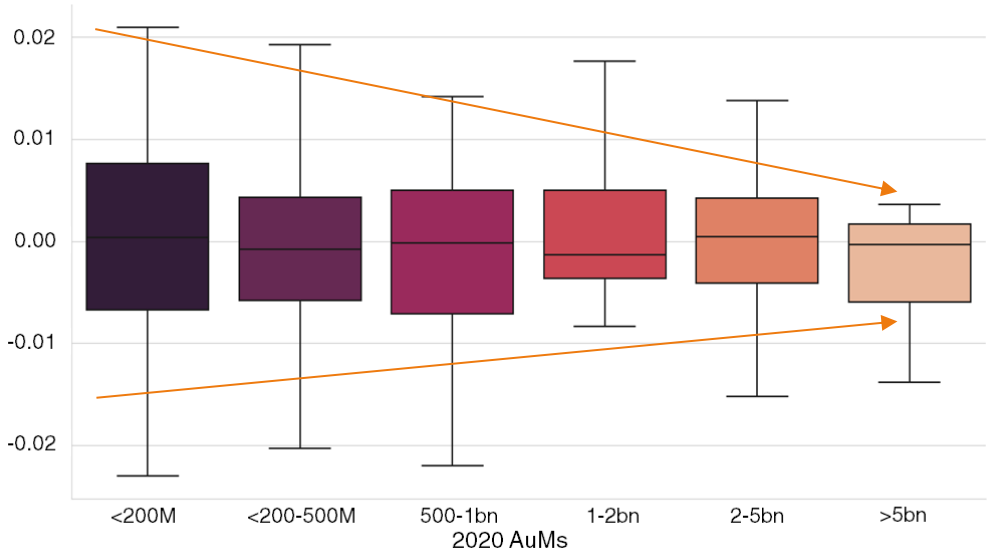
Can active managers adapt alpha generation skillset to their need for scale? The very scalability of alpha generation is indeed debatable: for instance, Stambaugh (2020)[7] argues that active managers' skills could yield decreasing returns with scale. *"The greater skill allows those managers to identify profit opportunities more accurately, but active management in aggregate then corrects prices more, shrinking the profits those opportunities offer."* Intuitively, active managers striving for issuer selection alpha at large scale will accelerate price discovery up to a point where their skill return vanishes. If this is correct, active managers' race for scale to resist low-cost ETF competition looks like a self-defeating strategy.

To empirically document how alpha generation has evolved over the last 5 years, we calculate in Figure 8 the alpha of each active fund of our corporate bonds' funds universe[8]. We compare the performance between each fund and an ETF replicating portfolio. This methodology provides an estimate that is directly reflective of the investor trade-off between an ETF based passive strategy and active funds.

[7] *Stambaugh, Robert F., Skill and Profit in Active Management (December 2, 2020). Jacobs Levy Equity Management Center for Quantitative Financial Research Paper, Available at SSRN*

[8] For the sake of simplicity, the Aggregate strategies have been eliminated from this analysis. The remaining universe is comprised of 482 funds with AuM ranging from $50m up to $55bn and amounting to $749bn as of end of Dec 2020. Each replicating ETF portfolio is constrained to match the Fund exposure to the first 5 principal components driving fixed income markets.

Figure 8: Alpha distribution for corporate bonds funds split by 2020 AuM 2016 – 2021, monthly data



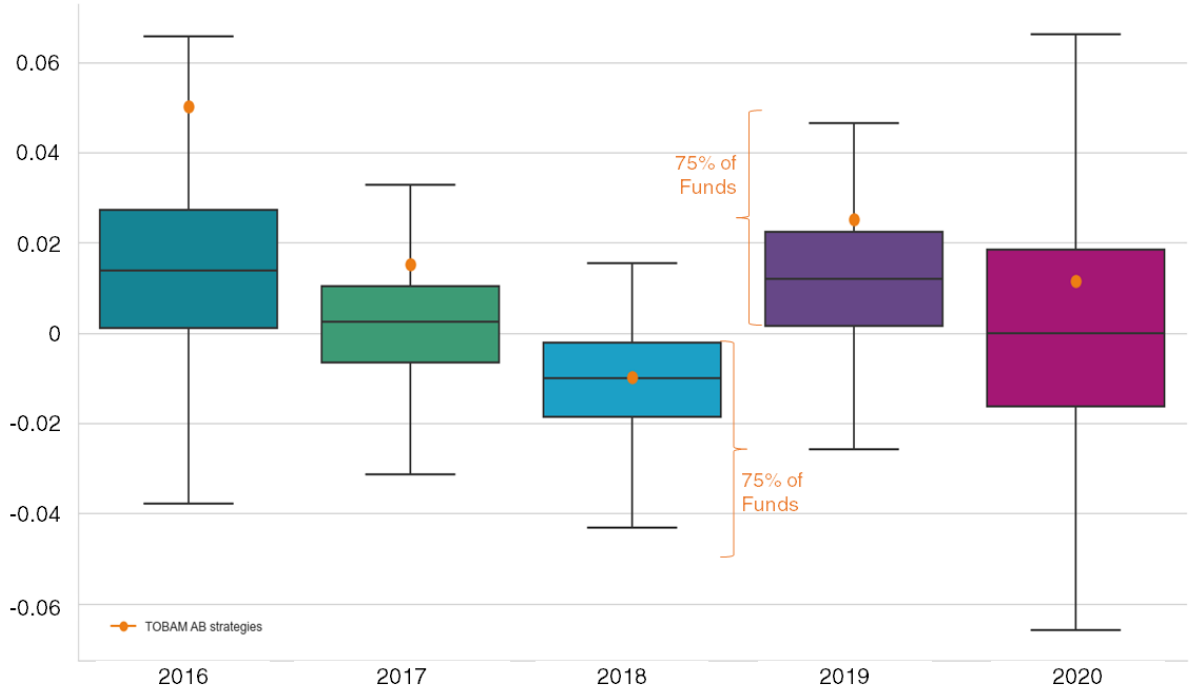
Sources: Bloomberg, ICE - Universe of active corporate bonds funds focused on corporate bond market with AuM above $50m as of end of Dec 2020 – alpha is estimated as the difference in performance between and each active fund in the universe and a portfolio of ETFs each year. Each replication is based on loadings of each fund's return regression on PCA factors computed on a set of 487 ICE-BofA indices over the same year over 5 years. The shaded boxes top and bottom lines show the first and third quartiles of the distribution with the inside line the median, whiskers report data points in last and first quartiles which remains in 1.5x the interquartile range relative to the shaded box.

Echoing Stambaugh's argument, the scalability of observed alpha generating skills remains a challenge: as highlighted in Figure 8, the higher a fund's AuM, the lower the dispersion of outcome in terms of alpha. Identifying the best alpha generating skills amongst funds is a tough job: whatever the AuM the probability of selecting the right manager remains close to that of a coin flip.

Selection can clearly add value for funds below $200m of AUM: the first quartile of these funds generated more than 0.75% p.a. and up to 2% p.a. of alpha over the last five years. Unfortunately, higher assets under management do reduce the magnitude of potential outcomes: within funds with AuM above $5bn, even first quartile funds hardly provide more than 0.5% p.a. of alpha.

Large fund managers reluctancy to engage in truly active credit selection is, however, not the only sign of disincentives for differentiation across the industry. By observing the dynamics of alpha generation over time, a common pattern emerges, with the vast majority of funds recording bad years or good years at the same time. For instance, 75% of the funds underperformed an equivalent ETF based strategy in 2018 while 75% outperformed the year after (see Figure 9). Such a pattern is not consistent with the very concept of alpha and points towards either a common factor missing from the ETF sample or a high correlation among timing and credit selection bets across active managers.

Figure 9: Yearly alpha distribution for corporate bonds funds vs TOBAM Strategies 2016 – 2021, weekly data



Source: Bloomberg, ICE - Universe of active corporate bonds funds focused on corporate bond market with AuM above $50m as of end of Dec 2020 – alpha is estimated as the difference in performance between a portfolio of ETFs and each active fund in the universe each year. Each replication is based on loadings of each fund's weekly return regression on PCA factors computed on a set of 487 ICE-BofA indices over the same year. The shaded boxes top and bottom lines show the first and third quartiles of the distribution with the inside line the median, whiskers report data points in last and first quartiles which remains in 1.5x the interquartile range relative to the shaded box.

As discussed in the previous section, ETF holdings can have a specific role linked to bond market liquidity. The liquidity premium is therefore a natural candidate as a potential common factor missed by ETF instruments. In order to test this hypothesis, we use a measure of the illiquidity of the underlying securities for each fund based on their returns' statistical properties, namely autocorrelations of first order[9].

We therefore compute autocorrelations of fund NAVs in the peer group based on weekly returns and filter out from the universe those funds that exhibit a positive autocorrelation keeping only liquid active funds. Unfortunately, liquidity alone does not seem to be the whole story as the same common pattern is visible in the non-autocorrelated group of funds. Such evidence adds to the suspicion of a potential consensual behavior among active managers in corporate bonds markets.

A more concentrated market around investors that do not allocate risk to alpha generation is not without consequences for the industry and the market itself.

- For the industry, the low-cost ETF competition and lower yields will continue to focus competition on fees and put scale at the top of active managers agenda. The subsequent race for scale would keep increasing buy-side concentration further.

[9] Illiquid securities tend to trade less often and take time to adjust to the general market trend. This is why their daily return exhibit some order one autocorrelation.

- As for the market itself, the price discovery mechanism could lose in efficiency. It's been indeed a long time since Grossman and Stiglitz (1980)[10] popularized the so-called paradox of the market efficiency equilibrium, which can be summarized along these lines: "*In efficient markets, there is little to no alpha to be made. Hence, no active manager's business can be sustainably profitable. However, if there are close to no active managers chasing alpha, there is no mechanism for a mis-pricing correction in the market, ergo the market is not sustainably efficient*".

At the same time, this should not come at the cost of providing investors with close-to-passive management, exposing them to the extreme risk concentrations and the undirected time variation of risk drivers in so-called benchmark indices.

One solution to this dim horizon is to rethink credit selection in a way to capture the diverse risk premia available in credit markets. Such a paradigm shift in portfolio construction relies on a rigorous quantitative framework to deliver the "true" beta of the asset class instead of chasing unscalable alpha generation.

We are strongly convinced that quant driven credit investing is the only way for active manager to achieve ETF-like scalability. At the same time, as we have highlighted and discussed previously, a quantitative credit portfolio construction approach that uses the maximization of diversification as its first guiding principle. This allows for investors to expose themselves to a wide set of risk and hence excess return drivers through issuer selection and controls these exposures over time. Portfolio construction based on such a quantitative compass positions the portfolio in a barbell-trade like way in the space of credit market risk drivers. This allows to build a scalable investment process addressing the formidable breadth of bonds markets.

TOBAM has been successfully managing credit focused strategies for more than 6 years across multiple investment universes both in the Investment Grade and High Yield universes. As highlighted in Figure 9, delivering the "true" beta of the credit market via the maximization of diversification led to a very consistent outperformance relative to passive instruments over the last 5 years.

[10] *Grossman, Sanford J.; Stiglitz, Joseph E. (June 1980). "On the Impossibility of Informationally Efficient Markets", American Economic Review.* ***70*** *(3): 393–408.*

Conclusion

Yield and spreads have consistently trended down over the last 40 years, up to a level suppressing price uncertainty in many segments of the corporate bond market. While corporate bond markets grew in breadth and size over the last 10 years, the development of passive investing altered the structure of the credit investment management industry, which became more and more concentrated on large funds.

- The buy-side of the corporate bond market is highly concentrated in a few hands, both on the ETF and active managers side which reflects more intense competitive pressure;
- As low cost and liquid instruments, ETF have proven highly successful in taking significant market share over the past years in the credit space;
- However, bond ETFs' success comes at some costs for long term investors:
  - They suffer from the same risk concentrations as the indices they replicate;
  - They Increase the liquidity premium attached to ETF-bonds thus delivers lower long-term Sharpe ratios;
  - They force active managers into a race for scale, which accentuates further buy-side concentration;
- Large active funds tend to converge towards passive investing with regards to the risk allocated to bond picking or market timing skills as performance drivers;
- Quantitative credit processes are strong candidates to overcome this alpha scalability challenge and address the formidable breadth of bonds markets;
- TOBAM's approach to credit is able to combine ETF-like scalability while consistently collecting premia across multiple risk drivers.

For more information

TOBAM is an asset management company offering innovative investment capabilities whose aim is to maximize diversification. TOBAM's Maximum Diversification® approach, supported by original, patented research and a mathematical definition of diversification, provides clients with diversified core exposure, in both the equity and fixed income markets. The company manages $10 billion (March 2021) via its Anti-Benchmark® strategies in Equities and Fixed Income. Its team includes 47 investment professionals.

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