

iBoxx iShares \$ Corporate Bond Indices: Groundbreaking Index Construction Supports a Tradeable Listed Futures Product

Contributor

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Innovative Index Design

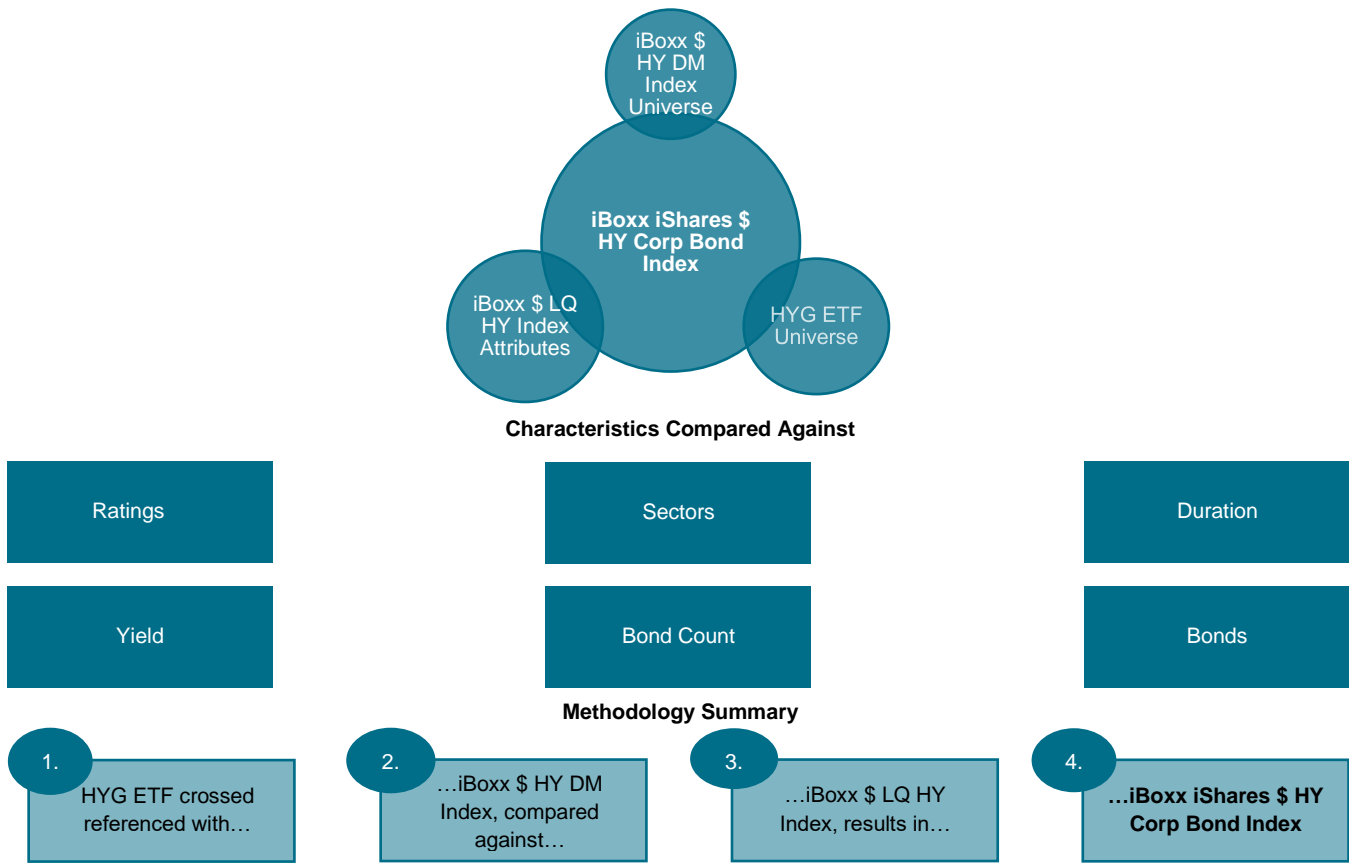
The iBoxx iShares \$ Corporate Bond Indices are the latest addition to the indices that comprise the liquid S&P Dow Jones Indices fixed income tradable ecosystem. These groundbreaking indices were designed to be a suitable basis for USD corporate bond index futures, which didn't exist prior to the formation of these indices and create easier market access for a wide variety of investors.

The two indices designed to underlie futures are the iBoxx iShares \$ High Yield Corporate Bond Index (iBoxx iShares \$ HY Corp Bond Index) and the iBoxx iShares \$ Investment Grade Corporate Bond Index (iBoxx iShares \$ IG Corp Bond Index). As part of the iBoxx index series, these indices offer broad coverage of the USD high yield and investment grade liquid bond universes, providing investors with objective benchmarks against which they can measure and execute their market views.

We'll summarize the iBoxx iShares \$ HY Corp Bond Index construction methodology to highlight the unique process by which the iBoxx iShares \$ Corporate Bond Indices are composed. The process is identical for the investment grade index; however, the inputs reference the equivalent investment grade indices.

The iBoxx iShares \$ HY Corp Bond Index is rebalanced monthly to match the holdings of the iShares iBoxx \$ High Yield Corporate Bond ETF (HYG ETF). Specifically, the index cross-references the iBoxx USD High Yield Developed Markets Index (iBoxx \$ HY DM Index) and the HYG ETF portfolio to form the index. Then, the characteristics of the index universe are compared against the iBoxx \$ Liquid High Yield Index (iBoxx \$ LQ HY Index), the benchmark of the HYG ETF, to ensure the new index characteristics closely match the HYG ETF benchmark characteristics within defined bounds. The characteristics are compared across ratings, sectors, duration, yield, bond count and bonds in common.

Exhibit 1: iBoxx iShares \$ HY Corp Bond Index Construction



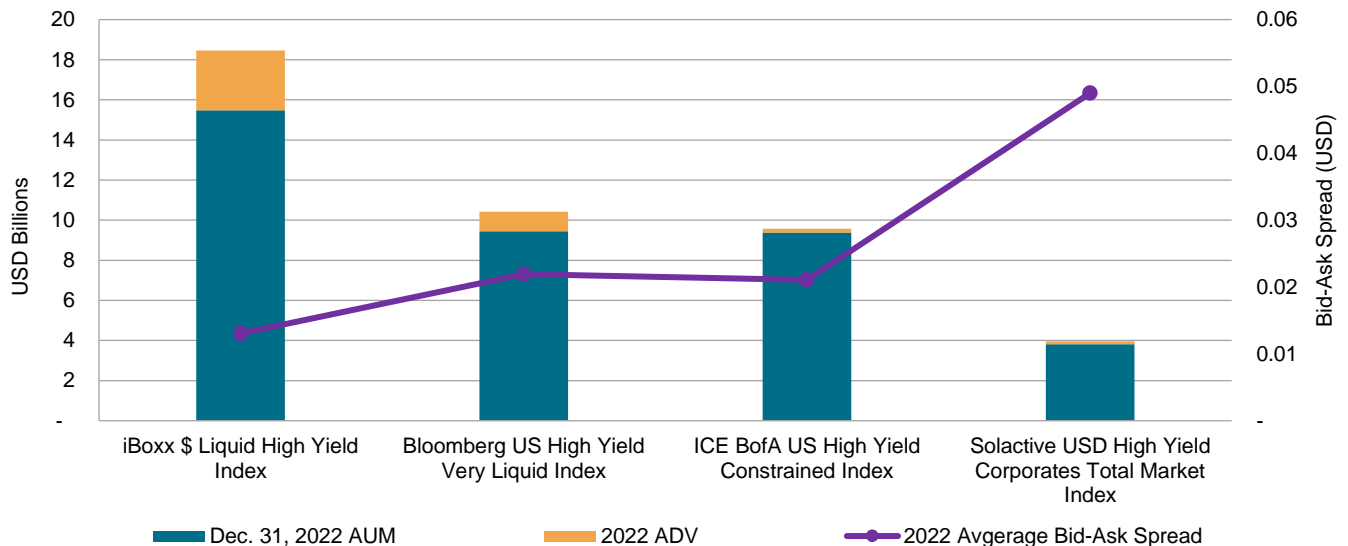
Source: S&P Dow Jones Indices LLC. Data as of Feb. 28, 2023. For more information, please see the [iBoxx iShares \\$ High Yield Corporate Bond Index Methodology](#). Chart is provided for illustrative purposes.

By starting with the ETF holdings, the underlying index is directly tied to the actual investments made by the ETF, while also ensuring that the risk characteristics closely match the ETF’s benchmark. This unique structure explicitly links the index to the ETF it is fashioned from, while also ensuring the index is in tune with the ETF’s benchmark. The reason the HYG ETF holdings are initially cross referenced with the iBoxx \$ HY DM Index, the broadest measure of the USD high yield market, is because an ETF manager can include holdings outside of the fund’s benchmark, even while those out-of-indices holdings are held by the manager to aid in their benchmark tracking. So, step one gets constituents as close as possible to ETF holdings

from within the iBoxx \$ HY DM Index universe. Then, the next step is to ensure that the risk/return profile of the iBoxx iShares \$ HY Corp Bond Index is tightly aligned to the iBoxx \$ LQ HY Index by running comparisons across several key attributes. The result is an index that, by being closely aligned with the ETF holdings, is fashioned to support market liquidity in derivative instruments, like futures. In addition, the construction of the iBoxx iShares \$ HY Corp Bond Index ties the index and its futures to the liquid tradable ecosystem surrounding iBoxx indices, which in addition to futures and ETFs includes standardized total return swaps.

The criticality of beginning with the ETF holdings in the design can be observed from a brief glance at liquidity across the largest USD high yield ETFs in the market. There are currently only four USD high yield ETFs, when filtering for those that track broad-based high yield benchmarks (excluding duration, rating or thematic styled USD high yield ETFs) that began 2022 with over USD 1 billion in AUM. From this universe, it can be observed that ETFs tracking the iBoxx \$ LQ HY Index comprise the most liquid segment of the market, whether reviewing by average daily volume (ADV) or average USD bid-ask spreads across 2022. ETF AUM linked to the iBoxx \$ LQ HY Index was 1.6 times the size of the second-largest USD high yield ETF; however, more notable is that the average USD ADV was more than 3 times the size of the second-most actively traded USD high yield ETF. The average USD bid-ask spread of USD high yield ETF activity linked to the iBoxx index was also substantially lower than other USD high yield ETFs that fit the size filters, indicating advantages in trade efficiency linked to iBoxx (see Exhibit 2).

Exhibit 2: Liquidity on Indices Underlying Largest USD High Yield ETFs



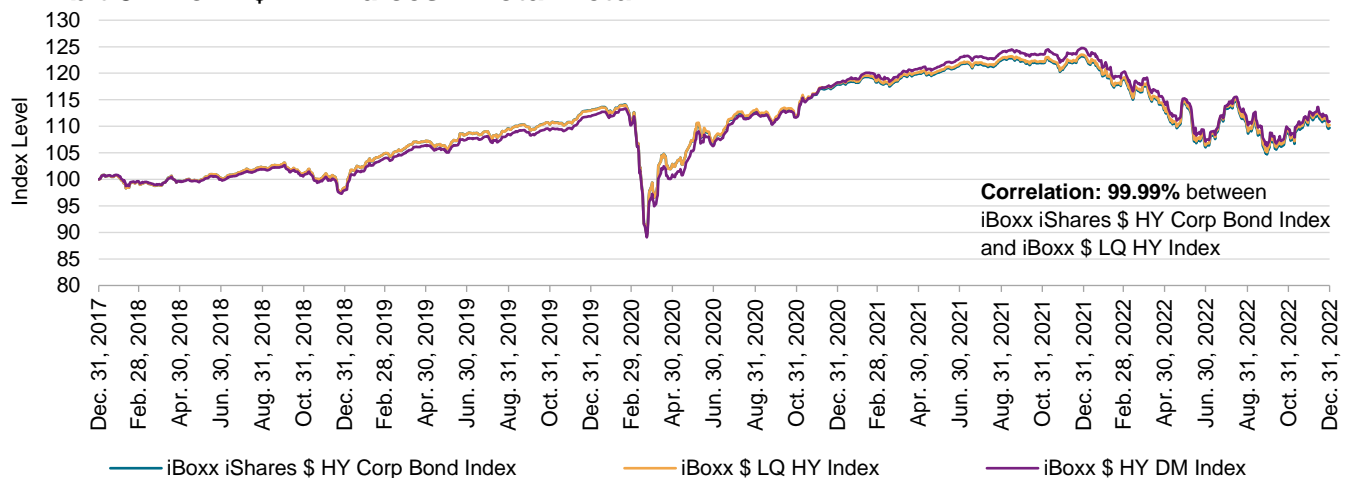
Source: FactSet Company/Security Analysis Tool. Data as of Dec. 30, 2022. Chart is provided for illustrative purposes.

Given the construction methodology that links these three indices together, we can see how they closely track each other. The linkage is especially close between the iBoxx iShares \$ HY

Corp Bond Index and iBoxx \$ LQ HY Index, which makes sense given the former is meant to track the holdings of the HYG ETF, of which the latter index is the benchmark.

The annualized total return between the iBoxx iShares \$ HY Corp Bond Index and iBoxx \$ LQ HY Index over the past five years was within 9 bps, during which annual volatility was within 3 bps. The maximum drawdown between the indices was within 4 bps, on March 23, 2020, at the height of COVID-19-induced market volatility. It's important to note that the iBoxx indices are designed to track the cash bond market, and hence include both duration and credit exposure, akin to what an investor would be exposed to through a broad-based basket of bonds. However, the iBoxx iShares \$ HY Corp Bond Index and iBoxx \$ LQ HY Index include issue and issuer size criteria along with diversification requirements to ensure a liquid, diversified strategy.

Exhibit 3: iBoxx \$ HY Indices – Total Return



Source: S&P Dow Jones Indices LLC. Data from Dec. 31, 2017, to Dec. 31, 2022. The iBoxx iShares \$ High Yield Corporate Bond Index was launched May 18, 2018. The iBoxx USD High Yield Developed Markets Index was launched July 20, 2018. All data prior to index launch date is back-tested hypothetical data. Past performance is no guarantee of future results. Chart is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

Exhibit 4: Risk/Return Profile of iBoxx \$ HY Indices

Metric	iBoxx iShares \$ HY Corp Bond Index	iBoxx \$ LQ HY Index	iBoxx \$ HY DM Index
Annualized Return (%)	1.84	1.93	2.05
Annualized Volatility (%)	7.20	7.17	6.51
Sharpe (0 rates)	0.25	0.27	0.32
Maximum Drawdown (%)	-21.79	-21.75	-21.40
Maximum Drawdown Date	March 23, 2020	March 23, 2020	March 23, 2020

Source: S&P Dow Jones Indices LLC. Data from Dec 31, 2017, to Dec. 31, 2022. The iBoxx iShares \$ High Yield Corporate Bond Index was launched May 18, 2018. The iBoxx USD High Yield Developed Markets Index was launched July 20, 2018. All data prior to index launch date is back-tested hypothetical data. Past performance is no guarantee of future results. Chart is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

Risk characteristics were also near identical between the iBoxx \$ HY indices. As an example, option-adjusted spreads and effective duration for the iBoxx iShares \$ HY Corp Bond Index and iBoxx \$ LQ HY Index were within 4 bps and 0.04 years of each other, respectively. Yield-to-worst was within 3 bps as well. Interestingly, Exhibit 5 indicates that the iBoxx iShares \$ HY Corp Bond Index had 10 more bonds than the iBoxx \$ LQ HY Index. This relates to the earlier point on how an ETF manager can hold out-of-index bonds as an effective way to manage their tracking error to their benchmark.

Exhibit 5: iBoxx \$ HY Indices – Summary of Risk Characteristics

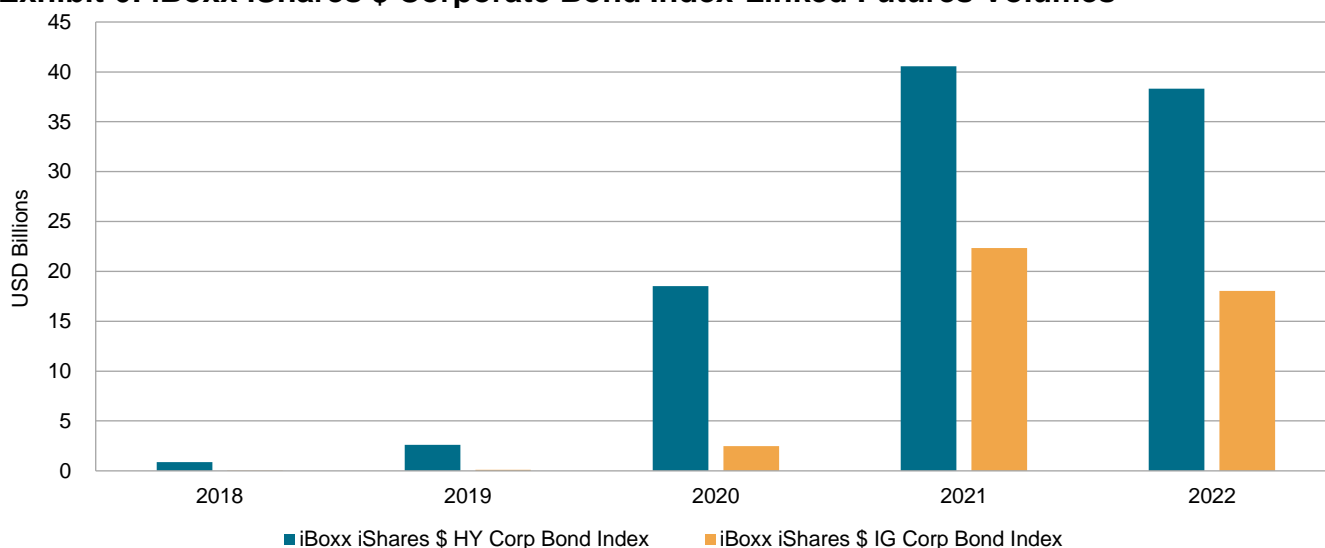
Risk Characteristics	iBoxx iShares \$ HY Corp Bond Index	iBoxx \$ LQ HY Index	iBoxx \$ HY DM Index
Option-Adjusted Spread	461	465	483
Effective Option-Adjusted Duration	3.99	3.95	4.06
Number of Bonds in Index	1,179	1,169	2,021
Yield-to-Worst (Semiannual)	8.48	8.51	8.68

Source: S&P Dow Jones Indices LLC. Data as of Dec. 31, 2022. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

Futures Activity Linked to iBoxx Indices

The first ever corporate bond index-based futures were launched in the fall of 2018. These futures were launched to settle upon the iBoxx iShares \$ Corporate Bond Indices. In the years since, volumes in the futures have begun to accelerate (see Exhibit 6).

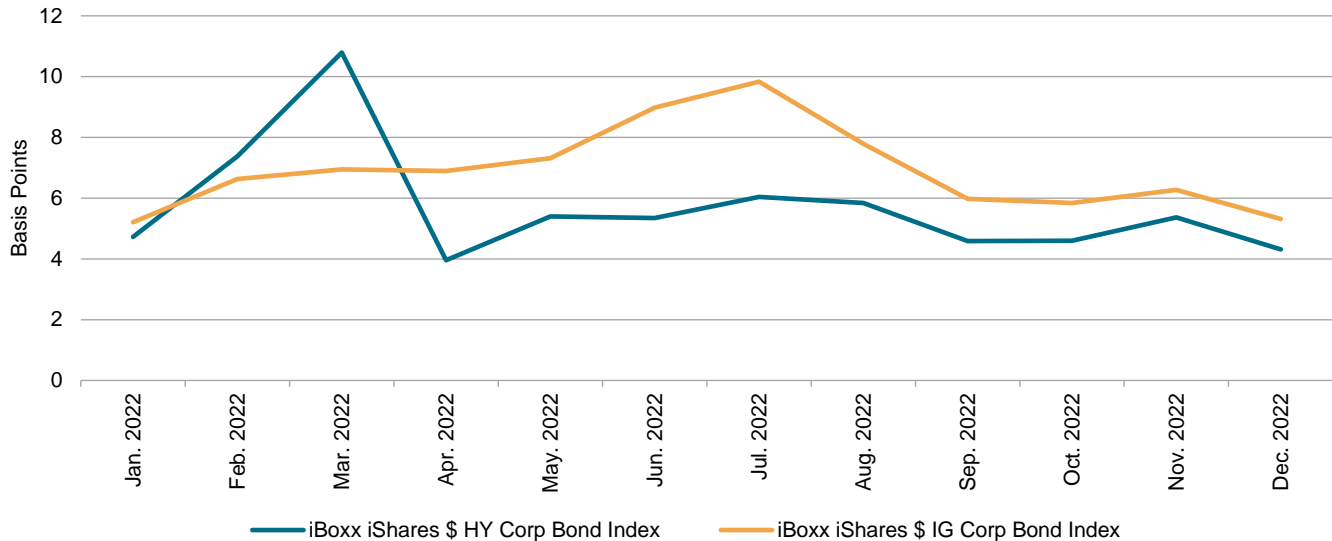
Exhibit 6: iBoxx iShares \$ Corporate Bond Index-Linked Futures Volumes



Source: Cboe Global Markets. Data as of Dec. 30, 2022. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

Average bid-ask spreads in the futures linked to the iBoxx iShares \$ Corporate Bond Indices have also indicated considerable trade efficiency available in these instruments. The average bid-ask spread in 2022 for iBoxx-linked futures on the high yield and investment grade indices were 6 and 7 bps, respectively (see Exhibit 7).

Exhibit 7: 2022 Average Bid-Ask Spread



Source: Cboe Global Markets. Data as of Dec. 30, 2022. Chart is provided for illustrative purposes.

What's Next?

The iBoxx iShares \$ Corporate Bond Indices and the linked corporate bond index futures represent a groundbreaking and important step in the development of the fixed income tradable ecosystem. Over the last decade, the fixed income landscape has witnessed strong growth across fixed income ETFs, standardized total return swaps, credit default swap indices and new means of trading individual bonds, like portfolio trading. The net effect has been an increase of activity across these tradable product types on an individual basis, as well as an increased fixed income market activity overall. The introduction of corporate bond futures, specially designed to fit well within the existing liquid fixed income tradable ecosystem, offers further benefits of choice, market robustness and trade efficiency.

Exhibit 8: iBoxx iShares \$ Corporate Bond Index Identifiers

Index Name	ISIN	Bloomberg Ticker
iBoxx iShares \$ High Yield Corporate Bond Index	GB00BF9QJD94	IBXXIBHY
iBoxx iShares \$ Investment Grade Corporate Bond Index	GB00BF9QJY08	IBXXIBIG

Source: S&P Dow Jones Indices LLC. Data as of February 2023. For more information, see <https://www.markit.com/Documentation/Product/iBoxx>. Table is provided for illustrative purposes.

Performance Disclosure/Back-Tested Data

The iBoxx iShares \$ High Yield Corporate Bond Index was launched May 18, 2018. The iBoxx USD High Yield Developed Markets Index was launched July 20, 2018. All information presented prior to an index's Launch Date is hypothetical (back-tested), not actual performance, and is based on the index methodology in effect on the index launch date. However, when creating back-tested history for periods of market anomalies or other periods that do not reflect the general current market environment, index methodology rules may be relaxed to capture a large enough universe of securities to simulate the target market the index is designed to measure or strategy the index is designed to capture. For example, market capitalization and liquidity thresholds may be reduced. In addition, forks have not been factored into the back-tested data with respect to the S&P Cryptocurrency Indices. For the S&P Cryptocurrency Top 5 & 10 Equal Weight Indices, the custody element of the methodology was not considered; the back-test history is based on the index constituents that meet the custody element as of the Launch Date. Complete index methodology details are available at www.spglobal.com/spdji. Back-tested performance reflects application of an index methodology and selection of index constituents with the benefit of hindsight and knowledge of factors that may have positively affected its performance, cannot account for all financial risk that may affect results and may be considered to reflect survivor/look ahead bias. Actual returns may differ significantly from, and be lower than, back-tested returns. Past performance is not an indication or guarantee of future results.

Please refer to the methodology for the Index for more details about the index, including the manner in which it is rebalanced, the timing of such rebalancing, criteria for additions and deletions, as well as all index calculations. Back-tested performance is for use with institutions only; not for use with retail investors.

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