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Backed bHigh Financial Risk Analysis Report FY 2023

Key Takeaways

- bHIGH is a tokenized version of HIGH Euro High Yield Corporate Bonds.
- A high-yield corporate bond (a.k.a junk bond) is a type of corporate bond that offers a higher rate of interest because of its higher risk of default. During the peak of the covid it decreased by 20% , but rebounded sharply when Central Banks announced further monetary easing and new facilities to provide liquidity to the economy. During the sharp interest rate increase of 2022 the return was -9%. On the positive side, the average duration of the bonds is relatively short, namely 2.7 years, and the current return to maturity is 7.4% annually.
- bHIGH is issued by Backed Assets GmbH, a subsidiary of Backed Finance AG. The operation is supervised by a 3rd party security agent (SA), however the ability of the SA to overcome all technical bugs and/or malicious operational intents is unclear.
- The token contract is controlled by a 2 out of 3 multisig, and has full control over the token. Token holders are potentially exposed to multichain risks, as it is deployed on several chains. The contract was audited by a boutique auditing firm, and some small changes in the code are not covered by the public audit reports.

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iShares € High Yield Corp Bond UCITS ETF

HIGH is the underlying of bHIGH token issued by Backed financials

Key Facts

- A high-yield corporate/”junk” bond is a type of corporate bond that offers a higher rate of interest because of its higher risk of default. "Junk" and "high yield" are terms used in the bond market, and they essentially refer to the same category of bonds. The difference lies mainly in the connotation of each term: “high yield” emphasizes the higher yield of the bond, and the term “junk” highlights the higher credit risk associated with these bonds.
- The manager of the HIGH is BlackRock, Inc., a well-trusted global investment management company and one of the world's largest asset managers.
- HIGH is currently well diversified, having in its portfolio 632 holdings, and the largest holding weight is 1.07%
- The last 3 years Total Return, and, consequently, the adjusted risk performance (measured by the Sharpe ratio) of HIGH are relatively low (0.85% and 0.11) given that the last 3 years was a period of extreme volatility in interest rates.
- HIGH currently has a comfortable medium-low duration: around 2.7. The higher the duration, the more sensitive is the fixed-income instrument to changes in interest rates.
- HIGH currently has an attractive yield to maturity: around 7.4%. Yield to Maturity (YTM) is the annual return you can expect to earn on a bond if you buy it now and hold it until it matures. As a matter of fact, Germany Sovereign Bonds 3 years Yield to Maturity is currently around 2.83%. HIGH currently offers an interesting added Yield over the Sovereign Bonds.
- The fee level (Total Expense ratio) of HIGH = 0.50% is relatively low, in relation with the Comparison Group (average fee level = 1.13%)

Source: https://www.blackrock.com/uk/individual/products/290618/ishares-high-yield-corp-bond-ucits-etf#chartDialog

Detailed overview

The investment objective of the Fund (HIGH) is to provide investors with a total return, taking into account both capital and income returns, which reflects the return of the Markit iBoxx Euro Liquid High Yield Index: https://indicesweb.ihsmarkit.com/iBoxx/details/index?id=ehy.lq.blackrock_eur_n_l_eu_eod_calc

The Markit iBoxx Euro Liquid High Yield Index is a: benchmark for the high yield corporate bond market in the Eurozone that emphasizes liquidity and tradability, serving as a performance yardstick for many investment funds.

In order to achieve this investment objective, the investment policy of the Fund is to invest in a portfolio of fixed income securities that as far as possible and practicable consist of the component securities of the Markit iBoxx Euro Liquid High Yield Index, this Fund’s Benchmark Index. The Fund intends to use optimisation techniques in order to achieve a similar return to the Benchmark Index and it is therefore not expected that the Fund will hold each and every underlying constituent of the Benchmark Index at all times or hold them in the same proportion as their weightings in the Benchmark Index

Returns of ETF versus Index:

Year	2018	2019	2020	2021	2022
HIGH	-3.5%	9.4%	0.9%	3.0%	-9.7%
Index	-3.4%	9.5%	1.7%	3.2%	-9.4%

The manager of the ETF is BlackRock, Inc., a global investment management company and one of the world's largest asset managers. Founded in 1988, the firm has become a giant in the financial industry, with a scale of over 9 trillion USD in managed assets.

The ETF manager states that the instrument has 3 key benefits:

1. Diversified exposure to sub investment grade bonds (known as **high yield bonds**)
2. Direct investment in corporate bonds across sectors (industrials, utilities and financial companies)
3. Euro denominated high yield exposure

General Facts

Net assets as of 29/Aug/2023	*EUR 283,995,573*
Share Class launch date	*21/Sep/2017*
Share Class Currency	*EUR*
Asset Class	*Fixed Income*
Total Expense Ratio	*0.50%*
Securities Lending Return as of 30/June/2023 (Annualized)	*0.23%*
Use of Income	*Accumulating*
Domicile	*Ireland*
Rebalance Frequency	*Monthly*
UCITS Compliant	*Yes*
ISA eligibility	*Yes*
ISIN	*IE00BF3N7094*
Exchange	*London Stock Exchange*

Source: https://www.blackrock.com/uk/individual/products/290618/ishares-high-yield-corp-bond-ucits-etf

The fee level (Total Expense ratio) of HIGH = 0.50% is relatively low, in relation with the Comparison Group (average fee level = 1.13%).

Source: https://www.morningstar.com/etfs/xlon/high/price

Portfolio

Fixed Income measures	HIGH	Category
Effective Duration	*2.64*	*3.07*
Modified Duration	*2.71*	*3.21*
Effective Maturity	*3.32*	*8.04*
Avg Credit Rating (surveyed)	*B+*	*BB*
Weighted Coupon	*4.19*	*4.50*
Weighted Price	*91.52*	*91.51*
Yield to Maturity	*7.37%*	*6.80%*

Source: https://www.morningstar.com/etfs/xlon/high/portfolio

HIGH Bond breakdown

Grade	Investment %
AAA	*0.00*
AA	*0.00*
A	*0.00*
BBB	*0.54*
BB	*55.87*
B	*39.23*
Below B	*4.37*
Not rated	*0.00*

Source: https://www.morningstar.com/etfs/xlon/high/portfolio

Risk and Volatility measures

Trailing	HIGH	Category
Alpha	*0.09*	*-0.33*
Beta	*0.91*	*0.91*
R^2	*99.49*	*93.25*
Sharpe Ratio	*0.11*	*0.13*
Standard Deviation	*6.82*	*7.02*
3 years total return	*0.85*	*0.73*

Source:https://www.morningstar.com/etfs/xlon/high/risk

HiGH is currently well diversified, having in its portfolio 632 holdings, and the largest holding weigh is 1.07%

HIGH risk/return ratio is better than the Category: 0.85/6.82 vs 0.73/7.02

About the issuer

Background

Backed Finance is a tokenized securities issuer founded in early 2021.

The Issuer is Backed Assets GmbH, a subsidiary of Backed Finance AG. It was established as an SPV and its principal activity is the issuance of backed products in the form of blockchain-based cryptographic tokens

The project raised the seed round in May 2021 with support from Gnosis, Semantic Ventures, and Stratos technologies. Backed is currently managing assets for the value of around 45 million USD. The headquarters are in Zug, Switzerland; there are offices in the Middle East and Africa (EMEA).

Cofounders: Roberto Klein, Adam Levi, Yehonatan Goldman.

Source: https://backed.fi/

Backed business structure

Backed issues fully-backed (1:1) structured products that track the value of RWAs such as Bonds, Stocks, or ETFs.

The underlyings of these structured products are conventional securities traded in well known trusted exchanges.

The value driver of the structured product is identical to the value of the underlying assets.

The issued assets are ERC20, hence fully transferable.However, although the tokens are ERC20 freely tradables in OTC, centralized and decentralized exchanges, there is currently no circulation.There is no exchange data available.

The Tokenizer in this structure is Backed Finance AG, the parent company of the Issuer. It is responsible for the tokenization services, i.e, the creation and activation of the tokens as well as handling the issuance and redemption transactions on behalf of the Issuer.

The underlyings are purchased using a Broker, and placed in a custody account by a regulated Custodian.

The custody account is supervised by an unrelated 3rd party (the "Security Agent"), which has the authority to block the account and dispose of the assets to pay Tokens Holders the value of their investment.

As Paying Account Providers, Custodians will also hold cash amounts and other assets received by the Issuer in connection with the purchase and sale of the underlyings' shares in Paying Accounts. During normal operations, the Paying Account Provider will be directed by the Issuer. During a Net Realization Event, the Paying Account Provider will only act on the instruction of the Security Agent.

The role of a Custodian is to maintain the securities accounts to which the underlyings' shares that are purchased are credited.Custodians may also serve as Brokers for the underlying and are responsible for the acquisition and disposal of the underlyings' shares.

The Issuer retains some cash and stablecoins as working capital to enable smooth transactions and was adequately capitalized at the close of 2022, However, the Issuer does not have the obligation to hold cash/reserves to keep fully operative, it is neither restricted on taking loans or any other activity affecting its balance sheet.

Backed's business model enables the token to maintain a 1:1 relationship with the underlying asset, reflecting the same price. Given that the Issuer bears annual costs, the model operates on the assumption that a minimal amount of issuance and redemption transactions will be carried out each year. Backed charges no management fees and only charges minting and redemption fees.Backed Assets charges a fee when Backed Tokens are issued and redeemed. No management fees are levied and no commission is charged by Backed on trades.

The Security Agent serves as the direct representative (direkter Stellvertreter) of the Token

Holders and is responsible for securing the claims of the investors to the Underlying as well as the Security Agent’s own claims for ongoing costs.

The Security Agent is responsible for initiating the realization of the underlyings’ shares when the products fall due and instructing the Paying Account Provider to initiate the payment of the pro-rata share of the Net Realization Proceeds to the Investors. Such activity qualifies as debt collection activity for and on behalf of the Token Holders as creditors. The Security Agent does not accept any funds on its own account for and on behalf of the tokens holders as its principals. All proceeds are directly paid to the Paying Account Provider which will make partial or full repayments to the Token Holders upon receipt of the respective instruction by the Security Agent and after having deducted and paid authorized third party fees.

Issuance and redemption mechanism:

1. Investors (that pass KYC/AML with Backed) place a buy order by sending USDC to the sweeping address allocated to them by Backed.
2. The received USDC is converted into USD and placed in the custody account, as part of the collateral for the product.
3. The underlying security is purchased and transferred to the custody account.
4. The pre-minted tokens are activated and transferred to the investor by the Tokenizer, acting on behalf of the Issuer.

Holders have the right to redeem the token for cash via the issuer at any time (during market hours), provided that the redeeming party has cleared KYC procedures with the issuer. ERC-20 transfers do not require addresses to be KYCed.

In this process, the Tokenizer has full control over the stablecoins received as payment until they are converted and given to the Paying Account Provider. The Tokenizer also has control on the issuance of tokens.

The redemption process is essentially the opposite of the issuance process described above.

Issuer redemption (Termination Event)

The Issuer has the right to unilaterally terminate the issued token if an event occurs that, in the sole discretion of the Issuer, requires the product to be discontinued (a "Termination Event"). Holders must be notified at the earliest possible date, but no later than 30 business days prior to the termination date.

The notification method will include email for KYC'd investors, other written forms of notification and a notice on the Issuer's website.

Termination can be exercised for various reasons, including lack of liquidity in the Underlying, legal or regulatory issues, increased collateralization costs, tax or governmental changes, cessation of services by major providers, or significant increases in technological or operational risks.

Following termination by the Issuer, the issued tokens will be redeemed on the termination date, which may vary significantly depending on various market conditions.

Under Swiss law, claims for payment of the redemption amount will be available for up to 10 years.

Issuer default - redemption process (Realization Event):

The Issuer is considered to be in default if any of the below occur, (each, a "Realization Event"):

1. The Issuer is subject to any form of winding up, administration, receivership, insolvency or debt enforcement proceedings under Swiss Law.
2. The Issuer violates applicable law, leading to a regulatory order to cease activity.
3. The Issuer breaches the issuance terms of the tokens, resulting in a claim for the Token Holders, especially if a payment or delivery commitment isn't honored on time or without defects, and isn't remedied within 30 business days.

When investors acquire tokens, they automatically declare to the Security Agent that they wish to enforce their rights under the Collateral Agreement (defined in 4.6.1) when a Realization Event occurs. The Security Agent, acting on behalf of the investors, either of its own initiative or based on information received from Tokenholders, has the powers to initiate the Realization Event at any point in time and assume control over the assets held as collateral.

In a Realization Event, the Security Agent has priority and is entitled to satisfy any claims against the Issuer from the realization proceeds, including any fees or extraordinary costs, before other payments are made to the holders.

After deductions, the remaining realization proceeds (Net Realization Proceeds) will be available for Tokenholders. The Security Agent will distribute these funds by instructing the Paying Agent upon a Realization Event.

The pro-rata share of the Net Realization Proceeds will be determined by the individual holdings of the tokens. Each Token Holders claim is limited to that share. Under Swiss law, claims for payment of the redemption amount will be available for up to 10 years.

Legal issues

Backed issues structured products under Swiss law and the underlying assets are held in custody in Switzerland.

Tokens are issued by Backed in the form of a freely transferable ledger-based security (ERC-20 token) under Swiss law. Tokenholders possess a contractual claim against the Issuer for the market value of the underlying, minus fees.

Tokens are issued as "Tracker Certificates," which is a type of structured product. Under Swiss law, such structured products are typically described as financial instruments whose return or redemption value tracks the performance of the underlying asset.

Although tokens are freely transferable there is a restriction of being distributed in primary or secondary markets to any U.S. person or in any other jurisdiction where distribution would be illegal.The issuer assumes no further responsibility for any subsequent offering of the token.

There is a Collateral Agreement in place between (i) the Issuer, (ii) the Tokenholders (as represented by the Security Agent), and (iii) the Security Agent. Any Investor acquiring the token on the primary or secondary market enters into and benefits from the Collateral Agreement. Under the Collateral Agreement, the Issuer collateralizes the tokens by granting the holders a security interest in the form of right(s) of lien(s) on the Underlying held with the Custodian

Currently, Backed can't provide real time proof that they are fully collateralized. Backed are working to implement a proof of reserves with an external auditor. In the meantime, Backed can provide balance statements of the custody accounts where the underlying securities are held, upon request.

Token Holders must have undergone an onboarding process, including AML/KYC in order to be eligible to subscribe to or redeem the token. The Issuer retains the right to reject any issuance or redemption in case of negative findings within the onboarding process. Redemptions are settled in CHF, other fiat currencies or cryptocurrencies, as per the discretion of the Issuer.

The Issuer has broad discretion in determining the occurrence of a Termination Event. The Final Terms list a broad number of events that might trigger a Termination Event, including illiquidity of the Underlying, regulatory scrutiny against the Issuer, increased cost of operations, loss of any major service provider, and increased technological and operational risk. In sum, the Issuer has sole discretion to terminate the tokens at any time, without providing specific reason and within 30 days' notice to the Investors.

The Issuer can reject redemption of the token with no liability toward the Tokenholder in the event of 'negative findings' or other material negative issues in the mandatory redemption onboarding process with the Issuer. Considering the restrictions around selling the tokens to U.S. Persons/sanctioned countries, the Issuer has relatively broad discretion in rejecting the redemption by a specific Tokenholder.

Risks affecting the Token Holders

- **Liquidity risk, reputational risk and settlement risk**, arising from the failure of any of the issuer counterparties:he Custodian, Paying Account Provider, Tokenizer and Authorized Participants to fulfill their respective obligations. If any such risk occurs, it may have material detrimental effects on the Issuer's business and financial position.The underlying is held by the Custodian; in case the **Custodian defaults**, a legal procedure for releasing the assets would be required. The assets under custody are legally separated from the balance sheet of the Custodian, and would only be attributed to the account owner (Backed Assets) and its customers (the Token Holders), after legal procedures.
- The **creditworthiness** of the Issuer may affect the market value of the tokens, and in the event of default, insolvency or bankruptcy, investors may not receive the amount owed to them under the relevant Terms and Conditions. Token Holders are exposed to any indirect credit risks that the Issuer is exposed to, for example the credit risks of other affiliated parties of the offer. The issuer is not restricted to take loans or incur in any other activity that affects its balance sheet.
- **Operational risk**: The Issuer may incur in losses, and/or fail to obtain delivery under any arrangements in place in respect of any Underlying held as Collateral. the Issuer does not have the obligation to hold cash/reserves to keep fully operative.
- The **insolvency** of the Issuer may lead to a partial or total loss of the invested capital.The issuer as a legal entity might default due to unforeseen circumstances. Nevertheless, as the underlying assets are held in a collateralized account, the Security Agent would intervene and seize control over the account, paying the Token Holders their corresponding value. Collateralization reduces the credit risk of the Issuer only to the extent that the proceeds from the **liquidation of Collateral less the costs of liquidation**. The liquidation of the Collateral may result in insufficient liquidation proceeds or, in extreme circumstances, that the Collateral may lose its value entirely before liquidation can take place.
- **Regulatory risks affecting Blockchain technologies and cryptographic tokens in the different jurisdictions**

Smart contract risks and on-chain activity

General risk

The system is supervised by a security agent that can facilitate the redemption of tokens into their underlying ETF value. However it is not clear how such an agent could mitigate bugs or malicious activities that result in unintended minting of unbacked tokens. Indeed, if the token minter mints an infinite amount of tokens, and sells them on a secondary market, it could be very hard for the security agent to maintain a meaningful value to the token holders.

Multichain risk

bHIGH token is officially deployed at address **0x20C64dEE8FdA5269A78f2D5BDBa861CA1d83DF7a** on Ethereum mainnet, Polygon, and Gnosis chain.

An unofficial deployment also exists on Binacne chain, Fantom, Arbitrum, Avalanche, BTT, and BASE. At the time of writing there is no mention for these deployments at the company's website.

bHIGH token holders should be aware that certain malfunctionings in each of these networks might affect the solvency of the system. While in some cases the security agent will be able to detect technical glitches and undo their effect, it is not clear that every bug could be undone.

Centralization risk

The token contract is fully controlled by a 2 out of 3 multisig. The multisig can upgrade the token contract, and assign different roles, including token minting. Hence, the solvency of the token crucially relies on the integrity of the multisig key holders.

At the time of writing the token contract is operated by 4 different roles:

1. **Owner** - can upgrade the contract, and assign the different rules. This is currently controlled by a 2 out of 3 multisig.
2. **Minter** - can mint new tokens. This is currently controlled by a 2 out of 3 multisig.
3. **Burner** - can burn tokens that are in possession of the burner wallet. On the Ethereum deployment this is controlled by an EOA (a non multisig wallet), on the Gnosis and Polygon deployments, this is controlled by a 2 out of 3 multisig.
4. **Blacklisting** - users can be blacklisted from transferring their tokens. On the Ethereum and Polygon deployments, this is currently done by querying the Chainalysis oracle for sanctions screening. On the Gnosis chain the list is maintained by the Backed Finance team, specifically by an EOA.

Having an EOA for the burner role is concerning as the individual who controls this address might choose not to respect the burn request, and as a result non backed tokens will remain in circulation. However the team assured us that the burn mechanism is currently not in active use.

An EOA that can black list users on the Gnosis chain is also not ideal. In principle. The blacklisting can be undone by the multisig that controls the contract. However, if time is of the essence, e.g., when used by a DeFi protocol, then it could still be a concern.

On-chain activity

At the time of writing, the total token circulation is 522,200 with a value of $2.3M. A single address holds over 94% of the total token supply. An additional 5% is held in an Angle Finance vault (a DeFi protocol for EUR stable coin). Additional two addresses hold less than $10k.

At the time of writing, the token was never traded in a decentralized exchange.

Smart contract audits

The token contract was audited by Team Omega. It is not considered a tier 1 audit firm, and according to the firm's official publications, team omega never audited a tier 1 DeFi protocol.

Further, two small changes were made to the code base and were never audited.

First change. Second change. While the changes are small, the code that was changed is part of a core module, and hence the protocol would benefit by having these changes reviewed.

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