

GMX BREAKDOWN

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Overview

GMX is a decentralized perpetual and spot exchange protocol currently on Arbitrum and Avalanche. It became popular for its unique GLP liquidity pool index which is a basket of assets used for swapping and leverage trading on the GMX platform, as well as for providing investors with 'real yield' from protocol revenue in the form of ETH and AVAX rewards. It stands out from other protocols by allowing traders to trade up to 30x leverage with no impact on token prices and *almost* no slippage. This is possible because of GLP.

As a decentralized and permissionless trading platform, users don't need a username or password to open and close trades or to provide liquidity. The protocol uses an aggregate price feed supported by a decentralized oracle infrastructure powered by [Chainlink](#).

GMX started as Gambit on Binance Smart Chain before pivoting to GMX. The protocol has a very engaged community which has created many tools based on GMX. They've even created an NFT collection.

GMX offers a referral link feature which allows users to earn commissions by bringing others to the platform. GMX is part of the growing DeFi derivatives sector. They already have numerous partnerships and are planning on expanding the number of chains they are deployed on.

Led by an anonymous team, GMX has become one of the leading protocols in terms of revenue generation, surpassing giants such as Aave, Curve, and even Bitcoin itself.

Its innovative trading system is what really sets it apart. It allows traders to rent liquidity from assets in the liquidity pool in a way that liquidity providers don't suffer impermanent loss. Liquidity providers earn 70% of protocol fees. Because of this model, perpetuals on GMX work differently than what some traders might be used to on CEXs or even DEXs such as [Perpetual](#) and [DYDX](#). Since liquidity is rented from the liquidity pool, traders who are going long are renting the upside on assets they are trading, and traders who are going short are renting the upside on stablecoins held by the pool. Because of this, long traders are paid in the asset they are long on, and short traders are paid in stables.

By holding GLP, you own a share of the multi-asset pool. Liquidity providers mint or burn GLP depending on if they are depositing or withdrawing assets from the pool. When you deposit or withdraw assets, you may be balancing or imbalancing the liquidity pool and this affects the amount of fees you get charged.

GLP holders act as a counterparty to traders. When GMX traders make a profit, GLP holders suffer a loss and vice versa. Because of this, GLP holders are referred to as 'the House' or 'the Casino', since traders lose more money on average than they earn.

When positions are opened or closed, the protocol charges a fee in addition to borrow fees that are paid to the traders' counterparty, GLP holders. In fact, all fees generated by the exchange are distributed to GLP and GMX holders. 70% of fees go to GLP holders and are paid in ETH or AVAX depending on the chain the user is on, Arbitrum or Avalanche. 30% of fees go to GMX stakers and are paid in Escrowed GMX tokens and multiplier points in addition to ETH and AVAX.

History of GMX

GMX launched in September 2021 as a perpetual futures DEX which allowed users to trade up to 30x leverage with near 0% slippage without the need to KYC and without geographic restrictions.

The protocol started as [XVIX](#) in November 2020 and then upgraded to [Gambit](#) on the Binance Smart Chain in March 2021. GMX was launched in September 2021 on Arbitrum and has been adding features such as smaller trading spreads, new assets added to the GLP pool, [integrations](#) with DEX aggregators such as [1inch](#) and [Paraswap](#), and deployments on other chains like Avalanche, fee discounts, and more.

Roadmap

The roadmap is focused on increasing trading volume and revenue from fees by:

- Launching on new chains
- More tradable assets
- Derivatives instruments

Being chain agnostic, the GMX wants to deploy on more chains to become the default multi-chain spot and perpetuals DEX.

Team

The team members are anonymous:

- Developers: [xdev_10](#), [gdev8317](#), [xhiroz](#), [vipineth](#)
 - Xhiroz manages a team of front-end developers (@[midasdev](#) on Github) and a designer.
 - [Vipin](#) is also a contributor to the user interface (GMX terminal) and statistics page.
 - Gdev implemented limit orders and contributed to the statistics page
- Designer: [xhiroz](#)
- Marketing and business development: [Coinflipcanada](#), puroscohiba, bagggdad
- Community managers: y4cards, supersonicsines

There is no official role information other than the information compiled from Discord, Medium articles, Github or Twitter.

Sector Outlook

GMX is in the **derivatives sector** and more specifically, the **perpetual futures** and **spot trading** categories.

- Spot and perpetual trading accounted for [~95% of total trading volume in 2021](#).
 - [Spot trading volume grew by 130%](#) and reached \$49 trillion in total volume
 - [Perpetual trading volume grew by 498%](#) and reached \$57 trillion in total volume

There is also a significant transition from CEXs to DEXs, with the top 10 DEX's increasing their quarterly volume by [441.92% from Q1 2021 to Q4 2021](#).

Market share for perpetuals have increased from near 0% to 3%, with [DYDX](#) accounting for more than 2% of the entire perpetual exchange volume in Q4 2021. This volume is expected to increase with the adoption of L2s and scaling solutions of alternative L1s.

The current leader in this sector is [DYDX](#) with more than \$700B in volume since launch. [DYDX](#) launched on Starkware and is planning a future release on Cosmos. [DYDX](#) offers a central limit order book and allows for more complex order types, but to do so takes the trade-off of having more centralization from off-chain technology.

Other competitors and forks with a similar model are [Gains Network](#), [Mycelium](#), and [Metavault Trade](#).

GMX differentiates itself from its competitors through its revenue sharing model. GMX rewards are distributed to both liquidity providers and stakers in the form of esGMX (escrowed GMX). Other platforms such as DYDX reward traders with no lockup, which leads to trading revenues per epoch netting out against trading emissions.

GMX could eventually grow to a level where revenues are enough to sustain business operations without the need for token emissions as further incentives. Many people like that GMX distributes a large part of its revenue in 'real yield'; in ETH or AVAX depending on whether the user is on Arbitrum or Avalanche.

Mainstream adoption of GMX would turn the protocol into the go-to solution for on-chain spot and perpetuals trading. GMX revenue would attract both liquidity providers and traders. Further innovation of the GMX platform would allow it to gain even more attention from both retail and institutional investors. GMX would gain more market share by improving UX, reducing cost of gas, and using blockchain scaling solutions.

If more people moved from CEXs to DEXs, it would also help GMX.

During 2022, GMX has been among the top [revenue-generating protocols](#), even surpassing protocols like Curve, Compound, and Aave.

Chains

GMX is currently on **Arbitrum** and **Avalanche** and plans to deploy on other chains in the future.

Using the Protocol

Users

Target Users

GMX is for traders who want to use leverage with near zero slippage. This is possible due to its Oracle Pricing Model. Since there isn't an AMM, the GLP pool uses dynamic aggregated oracle

price feeds provided by Chainlink to determine the market price of an asset. The way this works is by taking the median price between Binance, FTX, and Bitfinex.

Users who believe in a multichain world would benefit from GMX being on as many chains as possible.

Trading

Trading logic is handled by the [Vault Contract](#), which stores deposits and handles the main trading functions.

- Funds are deposited into the Vault by minting GLP tokens.
 - i.e., if the price of GLP is \$15, users can mint 1 GLP by depositing \$15 in USDC.
- Funds are withdrawn from the Vault by burning GLP.
 - i.e., if the price of GLP is \$15, a user can burn 1 GLP to redeem \$15 in USDC.
- The Vault' swap functionality enables swapping tokens held in the vault.
 - i.e., if the price of ETH is \$3,000 a user can swap 1 ETH for \$3,000 USDC.

Opening a Position

When users open a position or deposit collateral:

1. A snapshot of the USD price of the collateral is taken
2. Traders deposit collateral into the protocol
3. A snapshot of the USD value of the collateral is taken

The collateral value of such trades will not change even if the price of the token being traded changes, for example:

- 0.1 ETH deposited as collateral at a price of \$1,500 would be equivalent to \$150 and would not change even if the price of ETH changes. The amount of profit or loss will be proportional to the position size. With 5x leverage, \$150 would be used to buy \$750 worth of ETH.

Going Long or Short

Unlike traditional margin trading platforms where users borrow assets to go short and borrow stablecoins to go long, users on GMX do the opposite.

On GMX, users borrow assets to go long and borrow stablecoins to go short. This means that traders rent exposure from GLP holders. If traders make a profit, GLP holders suffer a loss and vice-versa. This occurs because GLP holders are holding a token from a multi-asset liquidity pool.

- **Long position:**
 - Traders profit when the token price goes up
 - Traders lose when the token price goes down
 - Prices are paid in the asset users are longing (i.e., if you are longing ETH, you get your profits in ETH)
 - The collateral of long positions is the token being longed (i.e., ETH is the collateral for ETH longs, WBTC is the collateral for WBTC longs)
 - Considering the example above:
 - If the price of ETH increases by 10%, the position would be at a \$75 profit.
 - If the price of ETH decreases by 10%, the position would be at a \$75 loss.
- **Short position:**

- o Traders profit when the token price goes down.
- o Traders lose when the token price goes up.
- o Prices are paid in the stablecoin users use to open the position (i.e., USDC or USDT).
- o The collateral of short positions is any of the supported stablecoins (i.e., USDC, USDT, DAI, FRAX).
- o Considering the example above:
 - If the price of ETH decreases by 10%, the position would be at a \$75 profit.
 - If the price of ETH increases by 10%, the position would be at a \$75 loss.

Liquidations

A position can be liquidated by keepers if losses of the trade reduce the collateral to the point where position size or remaining collateral result in more than the max allowed leverage.

Partial liquidations

Users are given a liquidation price (the price at which the loss amount is very close to the collateral amount) when they deposit collateral to open positions.

- The liquidation price is calculated as the price at which the 'collateral minus losses minus borrow fees' is less than 1% of the position size.
- Once this price level is crossed in the opposite direction, the position is automatically closed.
- Partial liquidations explain why liquidation prices can change over time. This is because of borrowing fees. Because of this, if there is any collateral remaining after deducting losses and borrowing fees, the corresponding amount would be returned to the trader's account.

Things to Keep in Mind When Trading

- There is no price impact for trades. Since GLP holders provide liquidity and act as the counterparty to traders, there is only a small spread for entering and exiting trades. This makes GMX great for executing large trades.
 - o Long positions are opened at the higher price and closed at the lower price.
 - o Short positions are opened at the lower price and closed at the higher price.
- There can be slippage due to price movements between the time trades are submitted and the time trades are confirmed on the blockchain. On GMX, slippage is the difference between the expected price of the trade and the execution price.
- When depositing collateral for opening long positions, there is a 0.3% swap fee. This is charged due to the conversion of the asset to its USD value. This prevents deposits from being used as a zero-fee swap. This is not applicable to short positions. Withdrawing collateral does not have this fee either.
- GMX supports trigger orders such as stop-loss and take-profit orders. If a position is manually closed after trigger orders are set, the associated trigger orders remain open and need to be manually closed if the user doesn't want them for future trades.
- Limit orders are not guaranteed to go through. This can occur when:
 - o The mark price (an aggregate of exchange prices) does not reach the specified price.
 - o The specified price was reached but not for enough time for the limit order to be executed
 - o No keeper picked up the order for execution.

Trading Strategies

Traders can swap assets on spot trading, or trade perpetual futures with leverage without the need for KYC. They can also enjoy zero price impact trades on market order executions and enjoy trading without temporary wicks that might trigger liquidations.

Traders have access to a maximum of 30x leverage.

- When entering a long on an asset, i.e., ETH, traders rent the upside of that asset from the GLP pool
- When entering a short on an asset, traders rent the upside of the stablecoins from the GLP pool.

However, none of this liquidity is actually rented from the pool. When the position is closed:

- if the trader wins, profits are paid from the GLP pool in the form of the token being longed
- if the trader loses, losses are deducted from the trader's collateral and paid into the GLP pool

Hence, GLP holders profit when traders lose, and lose when traders win.

How Trading Works on The Backend

- The [Price Feed contract](#) accepts submissions from the [Price Feed keeper](#). This keeper calculates prices using the median price of tokens on Binance, FTX, and Bitfinex. There are 2 types of keepers:
 - Price Feed keeper: submits prices routinely for swaps
 - Position keeper: submits prices when executing a position
- The [Trading Vault](#) uses the price from the keeper as long as it's within the configured percentage of the corresponding [Chainlink price](#).
 - If the price exceeds this threshold, a spread would be created between the bounded price and the [Chainlink price](#). This spread is based on the historical max deviation of the [Chainlink price](#) from the median price of referenced exchanges. This action is performed by watcher nodes that send a transaction to enforce the spread between the keeper price and the Chainlink price.
 - Prices from keepers have an expiry of five minutes. If the last price has been submitted more than five minutes ago, the Chainlink price is used instead.
- Initially, GMX introduced a minimum [price movement rule](#) where the market price must move by more than 1.5% for a trade to be closed in profit. This was meant to prevent front running. Later in March 2022, a 2-part transaction process was introduced to limit arbitrage bots from taking advantage of lagged oracle price feeds. This solution aims to solve the 'cold start' problem in on-chain perpetuals trading.
 1. User sends the transaction with request details (i.e., deposit, withdraw, swap, increase or decrease positions, etc.)
 2. Keepers listen for the transactions and include the price for the request. After that, the transaction is sent to execute the request.
- GMX uses the GLP pool as a counterparty to traders. This combined with their oracle pricing system also represents an innovation for bot LPs, as they are not impacted by impermanent loss. Traders don't suffer from temporary wicks thanks to the use of an aggregated oracle pricing model that pulls price feeds from Binance, FTX, and Bitfinex.

Synths

GMX synthetic markets are created with a long collateral token, a short collateral token, and an index token:

- ETH-USD market with ETH as long collateral, stablecoin as short collateral, and ETH as index token.
- BTC-USD market with WBTC as long collateral, stablecoin as short collateral, and BTC as index token.
- SOL-USD market with SOL as long collateral, stablecoin as short collateral, and SOL as index asset.

Liquidity providers can deposit either long or short collateral tokens to mint liquidity tokens:

- The long collateral tokens are used to back long positions
- The short collateral tokens are used to back short positions
- Liquidity providers take on the profits and losses of traders for the market they provide liquidity for

Synthetic markets on GMX will be isolated and its contracts allow for new assets to be listed.

Users could:

- Deposit and withdraw liquidity
- Make spot swaps
- Leverage perpetual futures
- Make market orders, limit orders, stop-loss, take-profit orders

2 steps required for execution:

1. Users send the transaction with request details (i.e., deposit, withdraw, swap, increase or decrease positions, etc.)
2. Keepers listen for the transactions and include the price for the request. After that, the transaction is sent to execute the request

These 2 actions also help prevent frontrunning issues.

Funding fees and price impact keep longs and shorts in balance while reducing risk of manipulation.

- When there is an imbalance in long and short positions, the larger side pays a funding fee to the smaller side.
- Borrowing fees: to prevent users from opening equal long and short positions and unnecessarily taking up capacity for other traders.
- Synthetic contracts simulate a price impact similar to if a trader opened the trade in a DEX aggregator of the reference CEXs, which are Binance, FTX, and Bitfinex.
 - o There is a negative price impact if an action reduces the balance of the underlying collateral assets.
 - o There is a positive price impact if an action improves the balance of the underlying collateral assets.

Negative funding rates means that shorts pay a fee to longs, and positive funding rates mean that longs pay a fee to shorts.

If the index price of the asset is higher than the spot price of the asset, funding will be positive (to arbitrage back to the real price by incentivizing shorts and penalizing longs), and if the price is lower than the spot price, funding will be negative to penalize shorts and incentivize longs.

How Synths Works on the Backend

There are 3 kinds of keepers and nodes:

- Oracle keepers: check for the latest finalized blocks, pull prices from reference exchanges, sign the information, and publish the data to Archive nodes
- Archive nodes: receive the signatures of the oracle keepers and allow for querying the information
- Order keepers: check for deposits and withdrawals of liquidity requests and order requests and bundle the signed oracle prices with the request for execution.

Prices are provided by an off-chain oracle system:

1. Oracle keepers check the latest blocks
2. When there is a new block, oracle keepers fetch the latest prices from the reference exchanges
3. Oracle keepers sign the median price for each token together with the block hash
4. Oracle keepers send the data and signatures to archive nodes
5. Archive nodes make the transaction data available for anyone to query

Smart contracts for synthetic trading can be classified as:

- Storage contracts: hold funds and maintain an internal state (OrderStore, PositionStore, DataStore)
- Logic contracts: do not hold funds and don't maintain an internal state (OrderHandler, PricingUtils)

Investors

Investing Strategies

Liquidity providers suffer no impermanent loss and enjoy a high APR in ETH or AVAX based on the amount of trading volume. Also, liquidity providers are eligible to profit from traders' losses.

Liquidity providers deposit assets in the pool to mint GLP. This liquidity represents an index of assets used for swaps and leverage trading. The token price of GLP is the value of the total worth of assets in the index including the unrealized profits and losses of open positions divided by the supply of GLP.

The composition of GLP is different on each chain. The fees for minting and burning GLP depend on if the index assets are underweight or overweight in the index pool. For example, if ETH is underweight, the fees for minting GLP by depositing ETH will be lower to incentivize more ETH deposits. The token weights in the pool are adjusted to help hedge the holders of GLP against the open positions of traders.

Business Model

GMX aims for value accrual to its governance token GMX while giving staking yield in ETH or AVAX instead of just using their more of the native GMX token as a reward. As per cryptofees.info, GMX is one of the most profitable protocols, given the upside and product differentiation from other perpetual trading exchanges. Low slippage trades and abundant liquidity attracts traders, which also incentivizes more liquidity providers who will generate revenue from traders' profits and losses, resulting in a flywheel effect. The value accrual for GMX is significant, since 30% of the platform fees are distributed to GMX stakers. This also rewards long-term GMX holders, reducing sell pressure of the token on the market due to the 1-year vesting period of esGMX (escrowed GMX).

Similarly, value accrues to GLP holders by entitling them to a share of the GLP liquidity pool, which also means that at any given time GLP holders are taking the other side of the longs and shorts currently open. Regardless of the profits and losses of traders, GLP holders are rewarded with 70% of platform fees. Because of this, holding GLP is like holding an index of the assets and stablecoins in the pool, which is usually dominated by ETH, WBTC and stablecoins as well as other assets such as UNI and LINK.

Revenue Streams

GMX gets its revenue from trading volumes. When this revenue is high enough to incentivise users to provide more liquidity, the protocol can reach a level where it can self-sustain itself even in a downtrend market. During 2022, the product stood out from its competitors and proved that the LP's APR and TVL metrics are not negatively affected by the decrease in esGMX rewards. This shows that the yield provided to LPs is enough to incentivize liquidity in the GLP pool.

The protocol generates revenue by charging fees when users opening or closing positions and by charging borrowing fees which are deducted every hour a leveraged position is open. This revenue is shared with GMX and GLP holders. 70% of fees go to GLP holders (GLP is automatically staked, meaning you can just hold it in your wallet to receive rewards), and 30% to staked GMX holders. When staked, GMX tokens accrue value from protocol earnings.

To continue incentivising liquidity while maintaining protocol sustainability, the GMX DAO passed a [proposal to update esGMX emissions](#). Rewards to staked tokens are distributed every second. The rate of rewards is evaluated and can be changed by the DAO.

Rewards are distributed as follows:

- When users stake GMX, they earn ETH or AVAX, esGMX, and Multiplier Points.
- When users stake Escrowed GMX (esGMX), they earn ETH or AVAX, esGMX, and Multiplier Points.
- When users stake Multiplier Points, they can boost the rewards from ETH and AVAX APRs.
- When GLP is minted, it is automatically staked and earns ETH or AVAX, and esGMX.

Most of the revenues come from margin trading (~75%), some come from spot trading (~15%) and dynamic fees minting and burning GLP (~5%). The remaining comes from liquidations.

Economics

Fee Breakdown

- 0.1% trading fee of the position size when opening / closing a trade.
- Borrow fee at the start of every hour is paid to GLP. The fee per hour will vary based on utilization and is calculated as:
 $(\text{assets borrowed}) / (\text{total assets in the pool}) * 0.01\%$.
- If a swap fee is needed when closing a position, a dynamic swap fee ranging from 0.2 to 0.8% of the collateral size will be charged when closing a position. The actual fee value will depend on whether the asset being withdrawn is underweight/overweight in the pool.
- When depositing collateral into a long position, there is a 0.3% swap fee for the conversion of the asset to its USD value, i.e., ETH amount to USD value. This is to prevent deposits from being used as a zero-fee swap. This is not applicable for shorts.
- Withdrawing collateral from longs/shorts does not have a swap fee.
- Dynamic swap fees to mint/burn GLP, depending on if the action helps to achieve the target weight for the token being deposited or withdrawn in the GLP index.
- Execution fee to pay for blockchain costs. This covers two transactions involved when opening / closing / editing a position. The [Router](#) contract, which provides convenience functions on top of the Vault contract, handles transferring the tokens to the vault as well as wrapping and unwrapping if needed. The [PositionRouter](#) is responsible for handling the two-part translation process:
 - First the user sends the first transaction to request to open / close / increase / decrease a position and deposit / withdraw collateral.
 - [Keepers](#) observe the blockchain requests in order to execute them on time at the current index price. This network cost is paid to the blockchain network in which the protocol is deployed. If the position cannot be executed within the allowed slippage, the request is canceled, and the funds return to the user.
- Users can get fee discounts and earn rebates through the GMX referral program:
 - [Discounts and rebates](#) are distributed in ETH on Arbitrum and AVAX on Avalanche every Wednesday.

Rebates are the maker-taker fees collected by a market maker and that are shared with liquidity providers while charging the customers who take that liquidity out from the exchange.

Operating Expenses

Besides keeper nodes, watcher nodes are also run to verify that the prices submitted by the keepers have not been manipulated. These watcher nodes are responsible for continuously monitoring and computing the median price from the price feeds and comparing this price with the prices submitted by keepers.

Keepers and watchers are currently run by separate team members. As the team becomes more confident with regards to the watcher's reliability, they can open the watcher to be run by any user and receive notifications instead.

The price feeds and position keepers can be decentralized more by using [Chainlink keepers](#) or a custom execution environment such as [Intel SGX](#) used by Avalanche.

Tokenomics

GMX

GMX is the governance token for the GMX protocol.

- Expected max supply is 13.25M GMX tokens. Minting beyond the max supply of 13.25M is controlled by a 28-day time lock. This option will only be considered if more product launches need GMX token rewards as incentives. A governance vote is required before these changes are conducted.
- Circulating supply will vary depending on the number of vested tokens and the number of tokens used for marketing.
- Protocol owned by the protocol under the same [multisig signers](#) as the XVIX and Gambit migration:
 - <https://arbiscan.io/address/0x50F22389C10FcC3bA9B1AB9BCDafE40448a357FB>
 - <https://arbiscan.io/address/0x4E29d2ee6973E5Bd093df40ef9d0B28BD56C9e4E>
- GMX tokens can be bridged:
 - Between Avalanche and Arbitrum using [Synapse](#)
 - Between Ethereum mainnet and Arbitrum
 - Bridging from Ethereum is performed as per GMX's [user guide](#).
 - There is no need to bridge GMX tokens from Arbitrum to Ethereum, since all GMX functions can be performed on Arbitrum.
 - Bridging from Ethereum to Arbitrum takes a few minutes but bridging from Arbitrum to Ethereum has a 7-day waiting period during which you will not be able to access the bridged tokens.

Staking GMX

Users can [stake GMX](#) to earn rewards from 3 sources:

- Escrowed GMX (esGMX)
- Multiplier points
- ETH or AVAX rewards from converting 30% of swap fees from leveraged trading activity. These rewards are distributed after deducting [referral rewards](#) and network costs for [keepers](#) (~1% of total fees)
 - ETH rewards for users staking on Arbitrum
 - AVAX rewards for users staking on Avalanche

There are two options to access these rewards:

1. **Compounding** will stake your pending Multiplier Points and Escrowed GMX rewards, which will increase the amount of rewards you receive. If you compound or stake Escrowed GMX tokens, you can unstake them for vesting at any time later on.
2. **Claiming** will transfer any pending Escrowed GMX rewards and ETH or AVAX rewards to your wallet

Floor price funds

There is a [floor price fund](#) for the GMX token priced in ETH and GLP. These reserves can grow in 2 ways:

- Protocol-owned liquidity is provided by the protocol as GMX/ETH liquidity. Fees from this trading pair are converted into GLP and deposited into the floor price fund.
- Funds from [Olympus bonds](#):
 - 50% of funds go to the floor price fund
 - 50% of funds for marketing

The floor price fund:

- Ensures that there is available liquidity in GLP
- Provides stable income in ETH rewards for users who stake GMX
- Buys back and burn GMX when (Floor Price Fund) / (Total Supply of GMX) is less than the market price of GMX

Currently, the floor price fund is held in multiple contracts that will gradually consolidate into a single contract:

- <https://bscscan.com/address/0x0472F402EA8E301D7595545884Ad4C420E9865d6>
- <https://etherscan.io/address/0x6D42dAf7C26Aa3780178b80FAa893b9B6d4cCb85>
- <https://etherscan.io/address/0x2706AA4532721e6bCe2eA21c3Bb5bbb2146d1Ef1>

Token emissions

Token emissions seek to grow the network of users interacting with the protocol. This demand for using the protocol would generate organic revenue to sustain protocol operations while sufficiently incentivizing even more users to provide liquidity.

Token distribution

- GMX Distribution:
 - 6M GMX from the [XVIX](#) and [Gambit](#) migration.
 - 2M GMX paired with ETH for liquidity on [Uniswap](#). GMX liquidity is added on Uniswap as the price of GMX increases.
 - 2M GMX reserved for [Escrowed GMX](#) vesting rewards.
 - 2M GMX tokens for management of the floor price fund.
 - 1M tokens for marketing, partnerships, and community developers.
 - 250,000 GMX tokens linearly vested to contributors over 2 years.

It is unlikely that all tokens will be circulating at the same time, due to the tokens reserved for the price floor funds not being meant to hit the markets to avoid diluting the value of current token holders. Besides, esGMX emissions can only become liquid after a 365-day vesting period after which the underlying principal GMX or GLP can be claimed.

Current distribution of esGMX:

- 100,000 esGMX tokens per month to GMX stakers
- 100,000 esGMX tokens per month to GLP holders on Arbitrum
- 50,000 esGMX tokens per month to GLP holders on Avalanche from January 2022 to March 2022
- 25,000 esGMX tokens per month to GLP holders on Avalanche from April 2022 to December 2022.

Escrowed GMX (esGMX)

Escrowed GMX is meant to be a non-transferrable token that can be used in one of 2 ways:

- Staked for rewards, similar to GMX tokens:
 - Each staked Escrowed GMX earns the same amount in Escrowed GMX and ETH/AVAX rewards as a regular GMX token.
- Vested over one year to become actual GMX tokens:
 - In order to convert Escrowed GMX to regular GMX tokens, the tokens must go through a process of [Vesting](#). When the vesting process starts, the average

amount of GMX or GLP tokens that was originally used to earn the esGMX rewards will be reserved. This means that the actual ratio of tokens that will be reserved for vesting to your account will depend on the average staked amount and the rewards your account has earned.

- Example: if you staked 1,000 GMX and earned 100 esGMX tokens, then to vest 100 esGMX tokens, 1,000 GMX tokens will be reserved. Similarly, to vest 50esGMX, 500 GMX tokens will be reserved.
- The tokens that are reserved for vesting can't be unstaked or sold. They can be withdrawn, but partial withdrawals are not allowed, which means that the user would have to withdraw and unreserve all tokens as well as pause vesting. All esGMX tokens already vested into GMX will remain as GMX tokens.
- When esGMX tokens are unstaked and deposited for vesting, the tokens will stop earning rewards for the user.
- Once the vesting period starts, the esGMX tokens will be converted into GMX tokens every second such that the vesting process is complete after 365 days. esGMX tokens that have been converted to GMX tokens can be claimed at any time.
- If a user has pending esGMX rewards and sells GMX or GLP tokens, the user would need to re-buy GMX or GLP tokens in order to vest these esGMX rewards.
- Users can deposit into the vesting vault even while there is already an existing vesting in progress.

Despite being meant to not be transferable, users can perform a [full account transfer](#) of esGMX tokens. A full account transfer sends all GMX, esGMX, GLP tokens, and multiplier tokens to a new account. This functionality is only supported if the receiver address has not staked GMX or GLP tokens before. These transfers are the only way to transfer and cannot return back to the sending account.

Multiplier points

GMX uses multiplier points as a mechanism to reward long-term holders without token inflation. When users stake GMX, they receive Multiplier Points from the protocol at a fixed 100%APR. For example, 1,000 GMX tokens that are staked would earn a total of 1,000 Multiplier Points.

- Multiplier Points can be staked to earn rewards from fees, such that each multiplier point will boost ETH/AVAX rewards at the same rate as regular GMX tokens.
- When GMX or Escrowed GMX tokens are unstaked, the proportional amount of Multiplier Points is burnt. For example, if 1,000 GMX are staked and earn the user 500 Multiplier Points, then unstaking 500 GMX tokens will burn 250 Multiplier Points ($500 / 1,000 * 500 = 250$). The burn will be applied to both staked and unstaked Multiplier Points.
- The “Boost Percentage” shown on the [Earn](#) page refers to the user's boost amount from Multiplier Points.
 - Example:
 - User has \$10,000 worth of GMX and esGMX
 - ETH APR is 10%
 - User rewards would be \$1,000 annualized
 - If the user has an amount of Multiplier Points that is equivalent to 20% of the total amount of GMX and esGMX, the “Boost Percentage” is 20%

- In this scenario, a 20% “Boost Percentage” means that the user will get a 20% boost on its annualized rewards. Since the annualized rewards are \$1,000 the user would earn an additional boost of \$200 on ETH rewards from its Multiplier Points.
- o Calculation:
 - $\text{Boost Percentage} = 100 * (\text{Staked Multiplier Points}) / (\text{Staked GMX} + \text{Staked esGMX})$
 - Example

GLP

The GLP token is the tokenized representation of GMX’s liquidity pool. The GLP token consists of an index of assets used for trading. Its price is determined by the value of all tokens within the pool and factoring in the profits and losses of all current open positions.

- GLP can be minted using any asset included in the index
- GLP can be burnt to redeem any asset from the index.
- GLP tokens are automatically staked and will start earning esGMX and ETH/AVAX rewards. In other words, when GLP is bought it is automatically staked and when it is sold it is automatically unstaked. [Staked GLP](#) behaves like an ERC20 token. Users can approve and transfer GLP tokens to any wallet. When transferring, GLP will be unstaked from the user making the transfer and then staked for the receiving wallet. The receiving wallet would then start earning rewards.
- There is a minimum holding time of 15 minutes after minting. After that, users can redeem their GLP tokens. This 15-minute cooldown also applies before staked GLP can be transferred.
- GLP represents shares of an index of assets. Because of that, liquidity providers might be holding assets at undesired ratios.

The price of GLP minting and redemptions is calculated based on:
 $(\text{total worth of assets in the index including profits/losses of open positions}) / (\text{GLP supply}).$

GLP holders earn [Escrowed GMX rewards](#) and 70% of platform fees distributed in ETH for Arbitrum users or AVAX for Avalanche users. The fees are distributed after deducting [referral rewards](#) and the network costs of [keepers](#) (~1% of the total fees). GLP is specific to the network where it is minted and cannot be transferred across networks, since the price and rewards will be different.

- Staked GLP on Arbitrum:
<https://arbiscan.io/token/0x1aDDD80E6039594eE970E5872D247bf0414C8903>
- Staked GLP on Avalanche:
<https://snowtrace.io/address/0x9e295B5B976a184B14aD8cd72413aD846C299660>

Since GLP holders deposit liquidity for leverage trading, they will make a profit when leverage traders make a loss and vice versa:

- When leverage traders are at a loss in aggregate, GLP holders will make a profit.
- When leverage traders are in profit in aggregate, GLP holders will make a loss.

Fees for minting GLP vary based on the assets of which the pool has more or less of. The fees for minting will be lower for tokens that the pool has less of (to incentivize deposits in that asset) and vice versa. The protocol rebalances the fees to mint GLP, burn GLP or to perform swaps

based on whether the action increases the balance of assets included in the index or reduces it.

- Example:
 - If the index has a large % of ETH and a small percentage of USDC:
 - Actions that increase the % of ETH in the index will have a high fee.
 - Actions which reduce the % of ETH in the index will have a low fee.
- Token weights are rebalanced to help GLP holders hedge their exposure based on the open positions of traders:
 - If a lot of traders are long, then ETH would have a higher token weight.
 - If a lot of traders are short, then stablecoins would have a higher token weight. In that scenario, GLP holders would have a synthetic exposure to the tokens being shorted.
 - For example, if traders are shorting ETH, the price of GLP will decrease if the price of ETH decreases. If the price of ETH increases, the price of GLP will increase from the losses of the traders that were short.
- Even if a lot of traders have a long position on the platform, the price of GLP will also increase when token prices increase.
 - The portion reserved for long positions can be treated as stable in terms of USD value given the profits from the price increase will be used to pay traders.

GLP also grants exposure to volatile markets that negatively impact both long and short traders, filling the pool assets as it simultaneously makes a profit from trading fees.

Governance

GMX governance proposals can be tracked in their [snapshot page](#).

There are parameters controlled by the team and adjusted by a [Timelock](#), such as:

- Listing new tokens
- Updating the price feeds used by the Trading Vault
- Updating the contract that validates the opening/closing of positions and also specified how fees are calculated
- Updating governance values.

The [Timelock](#) requires a 24 hour gap between when details of an action are signaled on-chain to when the action is executed. The reason for choosing 24 hours is to quickly respond to any issues that may occur. The Timelock contract is monitored by team members.

[Timelock smart contracts](#) *restrict the functionality within a smart contract to a specific window of time.*

GMX is open source and has a large and supportive community. Such a strong community is a big difference when compared to other protocols, since the support and contributions can act as a great marketing campaign. The community has built multiple projects and governance proposals that keep pushing the narrative forward. Some examples are the statistics page, a trading competition, a referrals program, a NFT project lead by @xm92boi called the GMX Blueberry Club, and more.

- [GMX positions bot](#)
- [GMX leaderboard](#)

- [GMX statistics](#)
- [GMX charts](#)
- [GMX returns calculator](#)
- [GMX optimal compound interval calculator](#)
- [GMX feedback and features request](#)
- [GMX Blueberry Club](#)

Risks

Security

Interacting with any smart contract requires caution. While these risks are minimized through testing, audits, and bug bounties, there is always risk of vulnerabilities.

If a malicious transaction is sent, it is possible for all funds in the pool to be compromised. To mitigate this, all actions that can impact user funds must pass through a 24 hour [Timelock](#) contract controlled by the team. By doing this, an action is signaled on-chain, then there is a 24-hour time gap, and finally the signaled action goes through.

If malicious transactions are detected through their monitoring system or [Bug Bounty program](#), a multi-sig of advisors and community members can override the admin value of the Timelock and prevent the action from being executed.

The core logic of GMX contracts can't be changed, but certain peripheral functions such as price feeds and pricing calculations can be updated.

The two-step transaction process for swap fees and the integration with KeeperDAO seek to mitigate front-running attacks.

Flash loans do not have an impact on swaps or traders since the minting and redeeming of GLP are settled using the oracle price and are not dependent on liquidity pool balances or liquidity pool composition parameters. Even if the changing fees for swaps are dependent on pool compositions, the maximum benefit from a flash loan would be a zero-fee swap which adjusts the GLP token index towards the desired token weights.

Audits

The GMX contracts have been audited by [ABDK Consulting](#). There is an active [bug bounty](#) as well on [Immunefi](#).

- [ABDK Audit Review](#)
- [ABDK Gambit Solidity](#)
- [Quantstamp audit](#)

Economic Attack Vectors

- Price checks are enforced at the contract level. On each fast price update, contract variables store the percentage change in price for the update as well as the percentage change of the Chainlink price since the last update. If the cumulative percentage change

in the fast prices over a duration exceeds the cumulative percentage chain in the Chainlink prices, the spread between the fast price and the Chainlink price will be automatically updated.

- Short skew risk appears especially during big market downtrends when prices fall very rapidly. Some short traders win a lot of money and catch a lot of profits from the GLP pool due to the delta exposure to a larger number of traders going long. In this situation, the GLP pool must pay short traders for their profits with stablecoins. This reduces the size of the pool, causing losses to GLP holders that also reflect in a lower TVL.
- Since GLP acts as the counterparty for traders, the GLP pool can be depleted when the majority of the traders are profitable. Because of this, the protocol's success to incentivize liquidity providers depends on the assumption that the majority of traders will lose money in the long-term.

Dependencies and Access Controls

Access Control parameters on the smart contracts are controlled by the team. Among these settings are permissions to:

- Set swap and margin trading fees up to a maximum of 5%.
- Set the token weights of the GLP pool. This affects the dynamic fees of swaps. Currently, a swap which increases the GLP balance towards more of the specified token will be lower, while a swap that moves the GLP balance away from the desired amounts of that token will have a higher fee.
- Pause swaps or leverage trading under emergency circumstances
- Set the maximum allowed leverage
- Set the maximum total capacity for long/short positions.

Liquidity risk

On Avalanche, the oracle pricing model was exploited due to the thinner liquidity on-chain compared to centralized exchanges. By manipulating AVAX's price off-chain on CEXs, a trader managed to gain \$566,000 from the GLP pool. This example shows how off-chain price manipulation may allow traders to profit from the low slippage feature of GMX. A trader could see an imbalance between the long/short liquidity on GMX, buy a token on GMX, then buy a smaller amount on a centralized exchange to move the price up and, afterwards, close the long on GMX for a profit, open a short on GMX, and then sell the asset back on the centralized exchange to finally close the short on GMX for another profit. If the profits could cover the cost of price slippage for the position on the CEX, plus the platform fees on both the CEX exchange and GMX, traders with big amounts of money could maybe drain the GLP pool.

As long as the external liquidity to move up the price of any index asset is lower than the liquidity available in the GLP pool, there is room for traders to long/short the asset on GMX in advance to move the price up/down in CEXs and make a profit.

There is also risk from assets that are very illiquid. The price oracle for these assets might halt for some tokens during extreme market conditions, causing a loss for the protocol. As an example from the past, [Venus Protocol lost over \\$11.2M](#) when an attacker deposited 230M LUNA tokens to borrow \$13.5M given that the last oracle price update reported a price of \$0.107 for LUNA when, in reality, the market price was below \$0.01.

Investors

GMX has raised no funds from VC investments. GMX is the evolution from Gambit, a BSC (Binance Smart Chain) project that raised community funds and then migrated the liquidity to an equivalent of 6M GMX tokens.

From the GMX telegram chat and on-chain analysis, it is possible to discover investors that bought from the open market, such as:

- [Blocktower](#), buying over [2,400 ETH worth of GMX](#).
- [Ben Simon from Spark Capital](#) (prev. Mechanism Capital) is active in the Telegram channel, although it is unclear if an investment has taken place.
- [Flood Capital](#) is an advisor to GMX.
- [0xMessi](#) is well-known in Crypto Twitter and has been a contributor to GMX's statistics site.
- Among its supporters on social media we find [Arthur Hayes](#), [The Crypto Dog](#), and [AlgodTrading](#) among others

Additional Information

Partnerships

Other protocols can integrate and make the GMX ecosystem stronger. For example, partnerships with [DAO Jones Options](#), [Rage Trade](#), [Dopex](#), and more give traders' more flexibility and access to other instruments to speculate on the market. These protocols can create a moat against other competitors.

- [Dopex](#) European options allow traders to open a synthetic position that allows a perpetual position to be free from liquidations on GMX.
 - This is achieved by means of Atlantic options by depositing put options on Dopex at the same strike price as perps in GMX.
- GMX has partnered with [KeeperDAO](#) to relay all GMX oracle updates on Arbitrum and Avalanche through KeeperDAO to discover and settle the value of Oracle Extractable Value.
- DEX aggregators like [Wardenswap](#), BreederDAO, and YieldKak have integrated GMX as a route.
- Partnership with [OlympusDAO](#) to sell [GMX WETH bonds](#).
 - 50% of the funds raised from the bonds will be used to buyback and burn GMX as per the price floor fund
 - 50% will be used for marketing.
- Integration with [Banxa](#), a fiat on-ramp platform
- Integration with [Synapse](#) for a multi-chain bridge that allows the transfer of assets between Avalanche and Arbitrum.
- [Umami](#) also developed a USDC vault to offer delta neutral yield, but finally ran into issues that were documented in a [post-mortem report](#) pointing to an unexpected dump in the GLP price, and difficulties in their strategy automating asset rebalances.
- [Vesta Finance](#) offers to maximize GLP yield:
 - The VST-FRAX pool strategy deposits GLP into Vesta to mint VST which is then staked into the VST-FRAX pool to earn [an extra yield between 10% and 30%](#).
 - For example, if GLP has a 24% yield and a VST loan is taken at a 150% collateral ratio to deposit into the VST-FRAX pool, a user would 20% in ETH from

the GLP deposit, and 10% on the VST-FRAX pool deposit. Since the loan is taken at 150%, it would return 6.66% on the principal amount. This increases the GLP yield from 24% to close to 27%

- o Looping GLP on Vesta by depositing GLP into Vesta, taking out a VST loan at the user's desired collateral ratio and, with the newly borrowed VST acquire new GLP again and then repeat the cycle again. Users must be aware of the degree of [exposure they wish to have for leverage](#). At a lower collateralization ratio of 120% it is possible to achieve 6x leverage on VST, which at a 20% APR is the equivalent of a 120% APR. This looping strategy will raise the [liquidation risk of the user](#).
- [GLP vault released by PlutusDAO](#): users can deposit GLP to mint plvGLP, an interest-bearing position whose APR includes both ETH and PLS rewards on Arbitrum, with ETH rewards auto compounding. esGMX rewards accrue to Plutus but the yield from that esGMX is distributed to plvGLP stakers.
- [STFX](#) allows users to either invest in or manage vaults, with the vault only being live for one trade. This is similar to investing in a fund, but your funds are only locked for one trade. STFX is built on top of GMX, using its GLP liquidity pool and perpetual trading features.

Referral Program

- The [referral program is subject to change](#) by GMX token holders.
- Any user can create a referral code by going to <https://app.gmx.io/#/referrals> and clicking on the Affiliates tab.
- Referral codes must be created on both Arbitrum and Avalanche chains to earn rebates on both networks.
- You can share the link and whenever someone clicks on your link, the referral code would be stored with the user's account. Every time the new user makes a trade, they would receive a discount that would make you eligible to earn rebates from their trading fees.
- Rebates and discounts apply on the opening and closing fees for leverage trading. Rebates are calculated before the trading discounts so that referrers can earn on the full maker fee and from the trade spread.
- There is a cap of 5,000 esGMX distributed per week.
 - o esGMX tokens distributed through the referral program do not require GMX or GLP to vest
 - o The esGMX vesting vault for the referral program will be available until the end of 2022
 - o The price of esGMX will be based on the 7-day TWAP of GMX.

There is a tier system in place to prevent gaming the referral system through self-referrals. This ensures that referrers receive the rebates for the users that they brought to the platform.

- Tier 1: 5% discount for traders, 5% rebates to referrer
- Tier 2: 10% discount for traders, 10% rebates to referrer
- Tier 3: 10% discount for traders, 15% rebates to referrer paid in ETH / AVAX, 5% rebates to referrer paid in esGMX

Anyone can create a program by creating a referral code in Tier1. To upgrade to Tier2 or Tier3 there are more steps:

- Tier 2: At least 15 active users using your referral codes per week and a combined weekly volume above \$5 million

- Tier 3: At least 30 active users using your referral codes per week and a combined weekly volume above \$25 million

If an account fulfills the criteria, there is an application form available:

<https://forms.gle/8QF2bxdYhUHNo7c96>. Once filled, the user should get in touch with <https://t.me/GMXPartners> for a follow up.

FAQ

What are partial liquidations?

Due to the borrow fee being charged, the liquidation price for a position will change over time. If the token price crosses the liquidation price and there is any collateral remaining after deducting losses and fees, then the amount is returned to the trader's wallet.

How does pricing work?

There is no price impact for trades on GMX, which means that trades are executed at the mark price. This is possible because the liquidity pool acts as the counterparty. However, there is a small spread for entering and exiting trades.

What are stop-loss and take-profit orders?

These are 2 kinds of limit orders that prevent further losses or secure gains at prices set by traders. Note that in GMX, if a position is closed manually, the associated limit orders will remain open unless manually canceled.

Why are limit orders not guaranteed to be executed?

Limit orders are not guaranteed to go through when:

- The mark price, which is an aggregate price from centralized exchanges, did not reach the specified price in the limit order
- The specified price was reached but did not remain there long enough for the order to be executed
- No keeper picked up the order for execution

How does rebalancing of the basket of GLP assets work?

The fees to mint/burn GLP will change depending on whether the deposit/withdrawal of assets improve or worsen the balance of assets:

- If the index has a large percentage of an asset, actions which increase that percentage will have a higher fee.
- If the index has a small percentage of an asset, actions which increase that percentage will have a lower fee.

What is GLP?

GLP is an index of assets that are used for trading in GMX. It can be minted/burnt against any index asset and the pricing for minting/burning is calculated based on
(total worth of assets in the index including profits and losses from open positions) / (GLP supply).

What are multiplier points?

Multiplier points are a mechanism created by GMX to reward long term holders without token inflation. When GMX tokens are staked, the user receives multiplier points every second at a fixed rate of 100% APR (1,000 GMX staked for 1 year would earn 1,000 multiplier points). Multiplier points can also be staked for extra fee rewards.

Community Links

- GMX: <https://gmx.io/>
- Medium: <https://medium.com/@gmx.io>
- Docs: <https://gmxio.gitbook.io/gmx/>
- Announcements: https://t.me/GMX_Announcements
- Governance: <https://gov.gmx.io/>
- Github: <https://github.com/gmx-io>
- Telegram: https://t.me/GMX_IO
- Telegram Portuguese: https://t.me/GMX_Portuguese
- Telegram Chinese: <https://t.me/gmxch>
- Twitter: https://twitter.com/GMX_IO
- Discord: <https://discord.com/invite/cxjZYR4gQK>
- Statistics: <https://stats.gmx.io/>
- GMX token Avalanche:
<https://snowtrace.io/address/0x62edc0692BD897D2295872a9FFCac5425011c661>
- GMX token Arbitrum:
<https://arbiscan.io/token/0xfc5A1A6EB076a2C7aD06eD22C90d7E710E35ad0a>
- Staked GMX Avalanche:
<https://snowtrace.io/address/0x4d268a7d4C16ceB5a606c173Bd974984343fea13>
- Staked GMX Arbitrum:
<https://arbiscan.io/token/0xd2D1162512F927a7e282Ef43a362659E4F2a728F>
- API: <https://gmxio.gitbook.io/gmx/api>
- Interact with GMX contracts: <https://gmxio.gitbook.io/gmx/contracts>
- Long/Short leverage position calculator:
https://docs.google.com/spreadsheets/d/1OKCeRGU7I-xGx33-siBw_l8x7vP97y4KKKjA2x5LqhQ/edit
- GMX report by DeFi Cheetah:
<https://drive.google.com/file/d/1ZOZsAvvlouf6GbltrDgrcCXQ-FafAgZ/view>
- AG Build's Newsletter about GMX: <https://agbuild.substack.com/p/gmx-cash-flow-is-king>
- TheCalculatorGuy on how open a GLP Delta Neutral position:
<https://twitter.com/phtevenstrong/status/1546934621346177026>
- PhD Capital Newsletter on GMX:
<https://www.getrevue.co/profile/phdcapital/issues/everything-glp-hedging-leverage-manipulation-1403543>
- GMX Research Report by Riley:
<https://drive.google.com/file/d/1xG-Qn2-9xqHQennB03BLdE2O5tXa5Vro/view>
- GMX on DefiSurfer808 substack:
<https://defisurfer808.substack.com/p/gmx-the-on-chain-fty>

- GMX article by [0xkepler](#):
https://mirror.xyz/0x1e35A719f1d68da02DEf39Bde510c9cc4efDC84B/1WbTXj5CjB4CU0W083p8MDj_wfkWzDVzbCZmLHcDxr4
- Arthur Hayes GMX holdings over time: <https://dune.com/queries/1202784/2059115>
- A complete tutorial guide to GMX and GLP by [Blocmates](#):
<https://blocmates.com/blogmates/a-complete-tutorial-of-gmx-and-glp/>
- [Blocmates](#) review of GMX and GLP:
<https://blocmates.com/blogmates/what-is-gmx-and-the-gmx-glp-token/>
- GMX Arbitrum and Avalanche dashboard by [@0error_eth](#):
<https://dune.com/cgg0123/gmx>
- GMX analytics Arbitrum: <https://dune.com/shogun/gmx-analytics-arbitrum>
- GMX Analytics Dune by [@sliux](#) : <https://dune.com/saulius/gmx-analytics>
- Blueberry Pulse Substack: <https://blueberrypulse.substack.com/>
- Staking rewards and GMX: <https://www.stakingrewards.com/journal/how-to-stake-gmx/>
- Why STFX chose to build on GMX:
https://medium.com/@STFX_IO/why-stfx-chose-to-build-on-gmx-ed58a083aa8a
- Advancing towards the next DeFi hyperstructure by [Two Neurons Only](#):
<https://twoneurons.substack.com/p/gmx-advancing-towards-the-next-defi>
- What is GMX by [Mason Capital](#): <https://www.masoncapital.io/gmx-crypto/>
- GMX tutorial video by Blockchain Academics: <https://youtu.be/2yVaSbuCcqq>
- GMX and the Real Yield Narrative by Yield Labs:
<https://www.youtube.com/watch?v=7Qd2vmuieFU>
- The Blueberry podcast:
<https://www.youtube.com/channel/UCB9rdQtUIOCMliMhC5wGxjw>
- GLP Vault for 5 months experience by Thor Hartvigsen:
<https://www.youtube.com/watch?v=wf20rzOoA9E>
- GMX and CoinFlipCanada in the Hash rate podcast:
<https://www.youtube.com/watch?v=OMeIOH0er6w>
- Building a thriving ecosystem with GMX by Alpha Academy:
<https://www.youtube.com/watch?v=Q461zROHIdA>
- How GMX took over Real Yield by DeFiDad:
<https://www.youtube.com/watch?v=v7rgptZ6xxQ>
- GMX video by RektFoodFarmer: <https://youtu.be/D5YGEK1JgfA>
- GLP on GMX as a Bear Market Outperformer by Taiki Maeda:
<https://youtu.be/rfPBImyKE0A>
- GMX by Danku: https://youtu.be/_GErrxoOcxw
- GMX Overview and tutorial by KingMaker:
<https://www.youtube.com/watch?v=mFQoQqe6WuA>
- GMX on the Kingmaker podcast: https://youtu.be/MtMGH92i_TM
- GMX Deep Dive by Taiki Maeda: https://youtu.be/_J1FwwKk3HA
- How to Delta Hedge GLP by The Calculator Guy: https://youtu.be/_J1FwwKk3HA
- GMX Yield Faring by The Blockchain Guy: https://youtu.be/LJwxOF_L65s
- GMX review by The Babylonians: <https://youtu.be/mz3u7sVa-Bs>