

Risk Assessment - PAL Collateral for OTC Deal

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Useful Links

- Coingecko: <https://www.coingecko.com/en/coins/paladin>
- Website: <https://paladin.vote/>
- Github: <https://github.com/PaladinFinance>
- Blog: <https://keep.paladin.vote/>
- Twitter: https://twitter.com/Paladin_vote
- Main Discord: discord.gg/NBhD5KUkVk
- Bug Bounty: <https://app.hats.finance/vaults>
- Docs: <https://doc.paladin.vote/>
- Snapshot: <https://snapshot.org/#/palvote.eth>
- Forum: <https://gov.paladin.vote/>
- Prime Rating Report:
<https://primerating.mypinata.cloud/ipfs/QmdPwZ2VyVP2HaZ9abs1KmLJFTbWioe2ieDSnRhWEqShxd>
- Defi Safety Report: <https://www.defisafety.com/app/pqrs/529?develop=true>

Background

Paladin Lending was initiated during EthGlobal Hackathon “Market Make” (2021). The core team began exploring vote lending in January 2021 and released Paladin Lending in September 2021. Paladin is a decentralized, non-custodial governance lending protocol where users can lend and borrow voting power. Lenders can deposit their governance tokens or derivatives that grant voting power in exchange for yield, while borrowers can borrow voting power to gain more influence and for that need to pay a fee. Paladin protocol represents the meta-governance ecosystem that offers a potential solution to the existing problems of the governance system in the DeFi space: low voting turnover, low token holders participation in governance, unaligned interest between protocol users and investors, and high degree of centralization in DeFi protocols.

In January 2022, the Paladin team released their second product, Warden, a non-custodial veBoost marketplace that allows vote-locked token holders to sell their token utilities. In May 2022, Warden was upgraded with Quest platform that enables protocols (DAOs) to align veToken holders with their project.

Paladin is building a market around token voting, in order to increase governance activity and participation on DeFi protocols. The protocol is currently active only on Ethereum mainnet.

At the time of writing, Paladin’s revenue stands at an estimated \$39k/month. Recently, The Paladin team has contacted us (Inverse Finance) to inquire about borrowing 250,000 DOLA for 12 months at 15% APR. The private loan will be collateralized by their PAL token, their governance token (erc-20), with \$1.6M mcap (~\$10M FDV). Previously, Paladin was seeking a loan in November with similar terms with lending protocol Atlendis, but progress halted post FTX crash. They are seeking this loan in order to refinance a prior loan with Angle and Ondo for 500,000 agEUR. These funds were originally paired with \$500k PAL in a Uniswap v2 LP in late May 2022. Present day, this LP has TVL of \$443k, with 205,245 agEUR, meaning Paladin are down an estimated \$295,000 (excluding interest) on their original loan.

What follows is due diligence performed on Paladin.

Protocol Analysis

Org. Structure

☐ **Is the Protocol a DAO? How is it governed eg. delegates , snapshot**

[hPAL](#) (staked PAL) token holders have influence on multiple aspects of the protocol, such as managing protocol parameters, allocating treasury funds, initializing partnership programs, and more. A proposal is created for almost all decisions and changes regarding the protocol, as well as activities of Paladin DAO. Paladin governors can [lock their hPAL balance](#) for a period of 3 months and up to 2 years, in order to gain more voting power. For some decisions, like liquidity

mining adjustments, Paladin DAO uses [Optimistic Voting](#), whereby members are only able to vote between Abstain or Against. In this voting scheme, the proposed changes will not be executed, if a majority of Against votes reaches Quorum. Otherwise the changes are automatically accepted.

Paladin DAO uses the following infrastructure and governance tools:

- [Custom Dashboard](#) for staking, locking and managing PAL and hPAL tokens
- [Governance delegation portal](#) - for delegating voting power
- [Discord](#) - to initiate discussions about potential proposals, support channel, information hub and for other topics related to the protocol
- [Governance Forum](#) - for more specific discussions about already proposed changes to the protocol, strategy and other important topics
- [Snapshot](#) - platform for gasless signal voting
- [Boardroom](#) - user interface with all important informations about protocol governance
- [Gnosis Safe](#) multi-signature wallet for treasury management

Paladin has reliable and useful governance infrastructure. However, since no on-chain governance tool is used, all votes are just indicative (signalling votes). There is still 100% reliance on the team to enforce governance decisions.

☐ **Working group structure**

Between the core contributors of the team there are those with a finance background and those with a marketing background. One can assume the Paladin team consist of a treasury team, marketing team, and growth/business development team at the very least. Given the small size of the team there likely is overlap.

☐ **Are core contributors compensated / Doxed?**

The Paladin team is credible and public. On LinkedIn profiles of Paladin protocol team members, every member has working experience in line with his field of expertise and position. Paladin team has covered following fields:

Finance:

- Romain Figuereo - Co-founder of Paladin. Romain has working experience as a corporate lawyer. He worked as Economic Intelligence Officer at Simon Associates and as a Business Intelligence Officer at Decidanto.
- William Beguin - has skills in Financial modelling and data analysis, plus working experience at Foncia and Opera Gallery Group
- Bertrand Larbalestrier – Financial reporting, analysis, advisory, business and financial consulting. Bertrand has working experience in the blockchain sector as a technical writer at Mimo, and delegate and signer at Jarvis and ApWine.

- Salome Bernhart - Treasury Advisor. Working experience in traditional finance (BIS). Salome also has working experience in the blockchain sector at Prime DAO (governance and BD), IDLE Finance and Yield Guild Games (project manager).
- Developers: Valentin VIGER - Paladin co-founder and smart contract engineer, has working experience as developer at Coinhouse.
- Esaul Parra Garcia – Frontend developer, has 2+ years of working experience as frontend dev at EnCiv
- Lucas Denèle - FullStack developer, has 2+ years of working experience as developer at Gfi World and Sopra Steria

Marketing and communications:

- Alejandro Baquero-Lima - Community Manager, has working experience as community manager in web3 for Fractal Technology and the Blockchain Noodles Community
- Maria Biveine - CMO, has working experience as marketing manager (LKI Consulting), legal consultant (VilysLaw Firm) and BD executive (Klappir)
- Tom Amiri - DeFi product designer, has working experience in design and copywriting

Overall, the Paladin team has a strong financial background and covered all relevant technical positions. However, only co-founder Valentin has previous experience as a smart contract developer. As a protocol focused on developing decentralised governance tools, it can be expected that more team members have a technical background.

☐ **Any known controversies in crypto space**

Paladin are seeking a loan in order to refinance a prior loan with Angle and Ondo for the amount of 500,000agEUR. These loaned funds were originally paired with \$500k PAL in a Uniswap v2 LP in late May 2022. Present day, this LP has TVL of \$443k, with 205,245 agEUR, meaning Paladin are down an estimated \$295,000 (excluding interest) on their original loan. They are now seeking to refinance the loan and have a hard deadline of the end of January 2023. One could speculate that if they're not able to make payment to Ondo & Angle by then, the protocol would be at high risk of insolvency (at the very least, reputational risk).

☐ **Do they have a security or risk management team**

Upon early inspection, the Paladin Team does not have a dedicated risk management team within their organization.

Multisig Structure

- ☐ **Is protocol transparent of multisigs and signers, List/links of multisigs, purpose, and setup x of x**

According to Paladin docs: “The admin keys of the Paladin smart contracts are currently held by the Core Multisig. It allows updates to some parameters of the system, mainly to add new PalPools, and/or update modules. These include, but are not limited to, the Delegator used by a PalPool or the Interest Calculator logic.” Paladin adopted a [5-out-of-9 multi-sig](#) and elected the signers via a governance proposal ([PGP-8](#)). The current signers can be seen on this [governance forum](#) thread. The elected signers are credible and active community or team members.

☐ **Can multisigs interfere with collateral options? EOA minting**

Yes. As stated earlier, Paladin has reliable and useful governance infrastructure. However, since no on-chain governance tool is used, all votes are just indicative (signalling votes). There is still 100% reliance on the team to enforce governance decisions.

Influence, Reputation, and Partnerships

☐ **How long has the protocol been around , have they endured long bear markets?**

The core team began exploring vote lending in January 2021 and released Paladin Lending in September 2021. PAL was listed on Coingecko in late March 2022. Paladin has survived through the bear market so far albeit in a precarious predicament.

☐ **Have they been exploited and how was it handled , was value restored to users if affected.**

No prior exploit as of this writing.

☐ **Current and notable past partnerships , are they a net positive on the DeFi space**

At this point in time, Paladin has no vertical integrations, i.e. no other protocol is building “on top” of Paladin’s smart contracts. However, Paladin has a few horizontal integrations and partnerships with other relevant DeFi protocols. Paladin Warden has built its service on top of two ecosystem partners: Curve (Boosts market and Quest platform) and Balancer (Quest platform). Protocols using the Quest platform can also be considered partners from a treasury management perspective.

The Quest platform is currently used by:

- Liquity
- Threshold Network
- Balancer

In terms of partnerships, Paladin has entered a partnership with Angle using Liquidity-as-a-Service offering from Ondo Finance, which enabled the usage of agEUR as

liquidity for PAL token. Paladin also engaged in a token-swap agreement to manifest partnerships with PrimeDAO and APWine.

Audits & Bug Bounties

*Previous and Ongoing

☐ Audits & Bounties

Paladin has been audited once by Pessimistic pre-launch, you can find the audit [here](#).

Within the audit, 2 medium severity issues as well as 4 low severity issues were mentioned, and the changes were merged from the [following push request](#).

Paladin uses Hats Finance by allocating 250,000 PAL as a bug bounty (currently ~\$50,000), covering the codebase of Warden Boost and Quest. Bug bounties for Paladin Lending smart contracts are offered on [Immunefi](#), with a total initial budget of \$75,000.

Reward Payouts

☐ Rewards paid, vulnerabilities found with severity

On Immunefi, Payouts are handled by the Paladin team directly and are denominated in USD. Payouts are done in USDC. A “critical” level smart contract bug can be rewarded up to \$60,000, and a “high” level bug up to \$10,000.

Critical level bugs include any:

- Direct theft of any user funds, whether at-rest or in-motion, other than unclaimed yield
- Permanent freezing of funds
- Protocol Insolvency

High level bugs include any:

- Theft of unclaimed yield
- Temporary freezing of funds
- Permanent freezing of unclaimed yield

It should be noted that a reward disbursement from the Hats Finance would result in significant downward pressure on the PAL token.

Collateral Analysis

Oracles

☐ **Available Chainlink Oracles**

No Chainlink Oracle. Main liquidity source is a Curve LP, so one would have to rely on the PAL/wETH CurveV2 price oracle.

☐ **Does the asset have a backup oracle**

No.

☐ **Any advanced oracle implementation required**

For the sake of our engagement, we (Inverse) would have to rely on the PAL/wETH CurveV2 price oracle.

Liquidity, and Liquidations

☐ **AMM liquidity, (pools over 100k)**

PAL is available on 3 DEXs (Curve, Balancer and Uniswap) with deepest liquidity and daily volume on Curve in pair with WETH.

| Asset | # Markets on Ethereum | # CEX | Primary Liquidity (\$) | Secondary Liquidity (\$) | Alternative Liquidity (\$) |
|-------|-----------------------|-------|--|--|---|
| Pal | 3 | 0 | PAL/wETH on Curve (\$750k TVL) | PAL/agEUR on Uniswap v2 (\$442k TVL) | 80/20 PAL/USDC on Balancer (\$110k TVL) |

☐ **CEX markets with depth if available**

N/A

☐ **Liquidation Routing, Do liquidations require a wrapper?, accessibility**

Liquidity is available for liquidators on Curve and Uniswap in the form of two pools for high efficiency. PAL/WETH and PAL/agEUR. While agEUR and DOLA don't have a sufficient direct pairing it can easily be routed agEUR/WETH > USDC > DOLA to repay loans.

☐ **Peg Risk if any**

N/A

Tokenomics

☐ **Contracts, are they upgradable?**

PAL: [0xAB846Fb6C81370327e784Ae7CbB6d6a6af6Ff4BF](#)

hPAL: [0x624D822934e87D3534E435b83ff5C19769Efd9f6](#)

The [Admin page](#) clarifies that parameters are upgradeable. Additionally, the Controller page displays:

"The Controller is composed of 2 smart contracts, working in a Proxy & Implementation system. The Implementation can be changed to upgrade the Controller, and add more functions to it."

Therefore, we assume contracts are upgradeable.

☐ **Market Cap History , Price History , Volatility**

[Market Cap](#): \$1,651,969

FDV: \$10,098,549

Current Price: \$0.202135

From ATH: -86%

From ATL: 10%

☐ **Coingecko / Coinmarket cap**

[Coingecko](#)

[Coinmarketcap](#)

☐ **Emissions Policy, what are emissions used for?**

Continuous distribution of PAL tokens can not be accurately stated at the moment, because the tokenomics model has not yet been fully implemented. Hence, the allocation does not follow a strict schedule, the current issue of PAL tokens depends on three factors:

- Staking reward distribution
- Distribution of tokens for protocol owned liquidity (POL) strategy needs
- Incentives for attracting new users

Utility & Use Case

☐ **Does the Token have utility, Can it retain the utility while supplied to FIRM?**

The PAL token has the following purpose:

- PAL is a governance token for governing the Paladin protocol, through staking or locking, with an option to delegate governance voting power
- PAL functions as a reward token for incentive mechanism to PAL staking (hPAL), hPAL locking (6 months - 2 years), liquidity mining (a boost system) and liquidity providing (Protocol Owned Liquidity)
- In the future, PAL eventually might also bear the right to revenue sharing - this features is not active yet, but it is foreseen in future through the “Chest” module

The PAL tokenomics model has a 3-tier structure, as shown in image below:



This type of multi-tiered tokenomics model was introduced by the Paladin team on the governance forum. The tokenomics architecture is divided into three layers - Speculative (PAL), Contributor (hPAL) and Aligned Contributor (locked hPAL) layer. Such a structure enables multiple use cases and facilitates the mechanism-design for each group of users more precisely (based on their preferences).

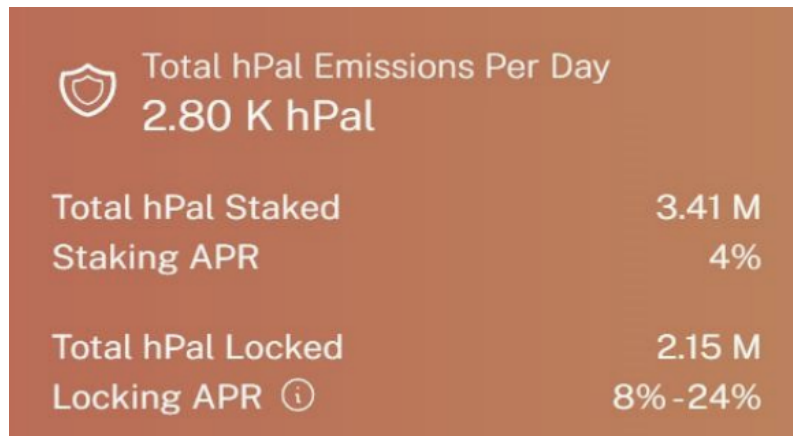
This tokenomics model is trying to achieve the following goals:

- Align interests of Paladin stakeholders
- Create a financial engine for the governance system
- Enable positive feedback loops between speculation and protocol usage
- Increase flexibility of the system as well as composability with other ecosystem projects

The PAL token does not have revenue-sharing, because the community decided to reinvest all revenue into further development and building of the protocol and its ecosystem.

☐ Liquid or locking feature

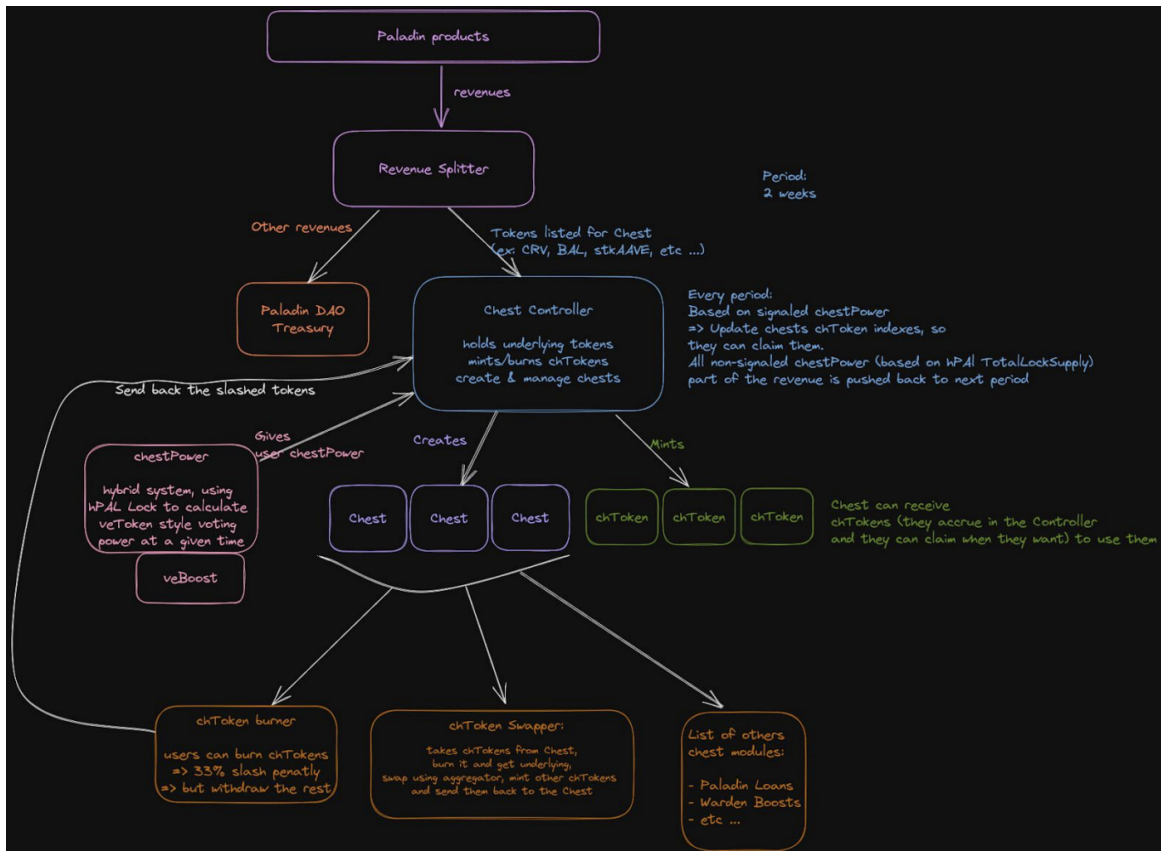
The image below shows the distribution of PAL tokens for staking and locking rewards:



☐ **Goal of the token, where is value derived from?**

Paladin generates revenue by charging fees when interacting with their products: Lending, Warden and Quests, but also with active POL management. The infrastructure for capturing value with PAL tokens exists, but isn't active because at the moment the protocol's strategy is to reinvest all revenue into further protocol development.

The image below shows the concept of value accrual mechanism after Chest Module implementation:



Paladin currently distributes value through PAL token inflation for staked PAL (hPAL) and locked hPAL. The rewards for staking hPAL are 4% and for locking between 8% - 24%, depending on the period.

Conclusion

In conclusion, the due diligence conducted by Inverse Finance's Risk Working Group on PAL by Paladin has determined that PAL is not a suitable collateral for the fixed-rate lending market, FiRM. The Pal token, which is an ERC-20 token built on the Ethereum blockchain, has demonstrated a shaky track record of stability, along with questionable treasury management practices, and does not have the necessary market capitalization, liquidity, and price oracle in place to support its use as collateral on the platform.

The team behind Paladin, however, has shown a strong commitment to the development and growth of the project. The team is actively engaged with the community, and they regularly update and communicate their development progress and road-map. PAL's technical and economic characteristics are possibly satisfactory for an OTC DAO-to-DAO loan arrangement with some caveats. Objectively, it is alarming that Paladin doesn't generate enough revenues in its current state

These are:

Collateral \$
CF