Aave community,

The Centrifuge team has been having lots of conversations with contributors across the Aave ecosystem about Aave GHO. We're obviously excited about the Real World Asset opportunity, and its clear to us that the Aave community is as well.

A consistent challenge we see across these conversations is how to even start thinking about real world assets. We put our heads together with a partner of ours who's been working on these same problems to share our thoughts. Below see how we and Steakhouse Financial view some of the critical conceptual framworks necessary for building and scaling a stablecoin!

Let us know what questions or thoughts you have! Centrifuge is excited to share this with you and start digging deeper into how we can make GHO the premier stablecoin in the industry.

And as always, none of this is investment advice

Stablecoin Management and Collateral for GHO: The Challenges and Opportunities

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TLDR: For any stablecoin of significant size, balance sheet management and effective collateral allocation strategies are imperative to success. Learn how balance sheets, collateral, and real-world assets all come together to bring stability to this DeFi primitive.

This article was written in collaboration withSteakhouse Financial, a DAO contributor that is an expert in integrating a data-driven, balance sheet perspective into stablecoin management. Centrifuge is a decentralized protocol that provides critical infrastructure for institutional-quality real-world asset transactions.

Stablecoins are the foundational building block in the crypto economy

Stablecoins have a critical function in the crypto industry and represent one of its key use cases. Numerous mechanics have been tested during the Cambrian explosion of experimental crypto protocols, with various degrees of success.

Managing these products, however, has proven to be an enormous challenge. Notable failures have pushed the boundaries of common sense and faced critical breaking points. The market for stablecoins, as large as the market for any currency or payment system, is fiercely competitive and remains a lush bed of growth and opportunity.

At its core, a stablecoin is an on-demand liability issued by a protocol or entity designed to provide stable price expectations. A stablecoin and its underlying mechanics must balance stability of the stablecoin price (i.e. the exchange rate to a fiat currency), which typically means allowing on-demand redemptions to a specific set of underlying collateral.

Yet, any successful stablecoin must also take calculated and well understood risks in order to compensate for operating costs, pursue growth strategies, and maintain a risk buffer. For a non-custodial decentralized stablecoin, this risk is recognized through the assets (and subsequent revenue) the stablecoin is collateralized against. For stablecoin issuers, the key to their long term sustainability and growth is the successful balance of these assets against the duration of their issued liabilities.

Challenges for stablecoins today

Asset-liability management (ALM) is the method of balance sheet optimization used by a stablecoin to ensure financial stability. While this is a long-standing field of expertise in traditional finance, the world of stablecoins has not yet fully integrated this point of view.

Some of the challenges in the stablecoin market include: financial reporting for on-chain assets as a nascent field, stablecoin markets are immature and substantially different from traditional markets, and stablecoin mechanics introduce novel operational and organizational elements that must be integrated. ALM is just one of the pillars of a successful stablecoin project and without it, the issuer is either taking excessive risk or managing capital inefficiently, ultimately impeding growth. For complex portfolios that include real-world assets (RWA), it is a critical tool.

A balance sheet perspective is a key tool for growth planning, risk management, and even community governance

The core business of any stablecoin is to balance user demand for stability against the cost of managing volatility risk. A stablecoin issuer needs to solve the optimization problem of maximizing earnings and growth under the constraints of solvency (i.e. the stablecoin reserves should always be higher than the stablecoins issued) and liquidity (users should be able to exit the system at any time under normal circumstances, at par).

Fundamentally, stablecoins borrow on-demand from depositors and lend them out at longer maturities to generate a positive return. The two fundamental drivers of positive unit economics for a stablecoin are related to the cost to borrow and the return earned on protocol assets. These drivers are wrapped in variables that must be constantly supervised and managed: explicit and implicit risks, liquidity constraints from borrowing at 0 duration, and keeping fixed operating costs at a safe level.

The stablecoin balance sheet

At the heart of any stablecoin is its balance sheet. While the on-demand duration of a stablecoin (i.e. the point at which a unit of issuance is redeemed) is strictly speaking zero, the effective nature of this liability will vary depending on the overall user appeal of that token.

Long-term value participants, such as long-term borrowers or users, comprise a stablecoins market of organic demand (i.e. non-incentivized, non-speculative usage). The advantage of a crypto stablecoin is that this duration can be tracked with reasonable accuracy in near real-time, providing instant insights into the liquidity demands and constraints facing the stablecoin. Furthermore, this can all be achieved with open source and commonly available tools that enable the community to participate in the analysis and governance of the protocol.

Example of balance sheet structure for MakerDAO

The income accumulated by a stablecoin serves as a buttress against potential long-tail risks, rolls into supporting expansion of the protocol into new growth opportunities and, if no better alternatives are available, can be returned to the token holders of the protocol. When the effective duration of the assets is matched correctly against the effective duration of the liabilities, the conditions are right to minimize the risk of a liquidity mismatch that could compromise the operations of the protocol. This is a minimum condition to extract a positive spread on the rate of interest earned.

Asset-liability management is a crucial tool to ensuring that these conditions are always in place. It involves developing a deep understanding of the nature of user behavior and identifying assets that are suitably matched in their duration profile.

Real world assets (RWAs) can help manage the asset-liability exposure of a stablecoin and provide uncorrelated revenue streams

Real world assets provide a unique opportunity for uncorrelated and diversified yields for crypto-native stablecoin issuers. Onboarded successfully, a stablecoin issuer can access the largest financial markets in the world and integrate productive workstreams of financial activity as a source of collateral backing.

An uncorrelated, and potentially inversely correlated, revenue stream brings considerable benefits to a DeFi protocol. In the current traditional financial market environment, we see rising interest rates. In the DeFi economy, we see falling interest rates. Though MakerDAO is at the beginning of the RWA journey, they are already generating 60% of their revenues from RWAs

, enabling them to sustain operations and reinvest for growth in a very bearish crypto market environment.

Real World Assets dominate the revenue share in the DAI collateral basket

Stablecoins are in a competitive market and ultimately will be measured across three components: utility (how deeply into an ecosystem the stablecoin is integrated), trust (brand of the issuer in serving as a reliable stablecoin issuer) and return provided to holders.

When combined with a business model built around lending and borrowing of native assets, real world assets can be an incredible building block, supportive foundation, and useful tool for addressing specific objectives and opportunities within these three components.

We believe the successful adoption of RWA requires a coherent and principled strategy that includes a sound portfolio approach and a commitment to on-chain integrations.

Onboarding RWAs is a complex challenge of portfolio development and management

Onboarding RWA collateral requires deep financial and legal expertise of each individual deal and asset issuance to ensure the issuer is maximally protected in even worst-case scenarios. At a higher-level, from the perspective of the protocol itself, an RWA collateralization endeavor isa question of portfolio development.

Portfolio construction is the art and science of putting investment objectives into action. For a stablecoin, an RWA portfolio is

constructed when allocating stablecoin supply against the infinite possibilities of RWA collateral. Portfolio construction is only one part of the equation and is only useful when paired with relevant inputs from other parts of the financial and operating model, such as organizational objectives, spending and budget forecasts, liquidity and liability constraints, risk and operational management, and numerous other factors. No asset can be evaluated and onboarded within a vacuum.

There are two primary methodologies for making investment decisions: an active or passive approach.

A passive approach tends to focus on the higher level objectives while minimizing asset-level decisions, effectively outsourcing this work to outside managers. This would look like a low-fee portfolio composed of simple index products, typically targeting the most liquid and lowest-risk assets available in public markets. Here, simplicity is used to achieve a benchmark market yield, but as a tradeoff, the investor has little choice but to ride out the strategic limitations and general market risks as they come.

An active approach onboards the complexity within an investment institution, using internal resources to handle the selection, management, and implementation of a broader portfolio strategy. Costly and fraught with risk, the additional flexibility allows for tailored strategies that can ultimately achieve higher risk-adjusted returns, reduced volatility, and better overall long-term performance.

Under favorable market conditions, passive strategies are seen as maximally effective, offering moderate yields for low cost. The challenge is two-fold:

- Market conditions are not always favorable, especially considering the unique complexities of off-chain integrations and ever-changing DeFi market sentiment. The resulting balance sheet volatility that can be realized in revenue earnings or available balance sheet capacity can be an existential challenge for a stablecoin.
- In the highly competitive, winner-take-most market that is currency competition, portfolio returns are one of the few available levers of competitive differentiation. A RWA investment strategy can either be a significant advantage and source of uncorrelated returns, or a lack of strategy can be a significant disadvantage and drag on growth.

Active investing strategies are very complex, challenging, and costly to implement. Active portfolio management stipulates:

- A high-quality and robust risk management practice must be developed. Compared with simply risk managing a few assets and deals, active strategies are resource intensive and demand an integrated and systemic approach to risk management that applies across people, processes, and technology in the investment value-chain.
- Achieving differentiated yields beyond the benchmark requires risk taking and long-term horizons. True rewards in active strategies are most often found in the illiquid and private corners of the market. Ultimately this requires an approach that utilizes data-driven economic analysis, effective legal and financial structuring, and a broad and deep base of market knowledge and expertise.

Any strategy that includes investments in bespoke opportunities outside of the core business, where RWA typically falls, requires the right suite of resources, products, and partners to be integrated together. RWA investments must be implemented within a coherent strategy that acknowledges the trade-offs and challenges of the chosen approach.

Bringing assets on-chain must be a critical aspect of an RWA strategy

For protocols and stablecoins, the native representation of assets and investments on-chain should be a fundamental requirement. Although investments via off-chain channels are possible, there are significant advantages to integrating RWAs natively.

Example of the data available on-chain for the New Silver portfolio on Tinlake

There are three main advantages in on-chain representations of off-chain assets:

- On-chain representation greatly improves existing trust assumptions. Being able to claim and represent ownership in the native ledger of a protocol is a critical advantage over off-chain custodial accounts. “Ownership is 9/10ths of the law”, and here native protocols must obtain every advantage they can.
- The transparency available in public and decentralized ledgers of account provides critical insight into the accounting, status, and representation of investments and collateral. Moving as much of the complex real world process and operations on-chain is a critical component to long-term value realization and effective risk management.
- Leveraging the composable interoperability of on-chain assets, services, and providers is a superior long-term business model for a stablecoin. Being able to directly integrate a portfolio of assets into on-chain systems and processes is how governance, management, and execution of RWA deals can scale into the trillions of dollars for native protocols.

Real world assets can be a critical part of a stablecoin balance sheet and require an on-chain approach to realize value and effectively manage risk over the long-term. This requires dedicated capabilities that go beyond just tokenization and is best served by a capable ecosystem of service providers and contributors.

Steakhouse Financial

Steakhouse Financial has unique experience at the forefront of stablecoin management, real-world assets, and cryptoeconomics. Our Chefs have helped pioneer real-world structures that have propelled MakerDAO to a leading position as a decentralized USD-tracking stablecoin with over $650m in real-world asset investments allocated to date, and a corresponding double digit percent increase in recurring revenue. We deeply understand the nature of organic stablecoin demand, as well as the network effects and branding inertia that needs to be in play to make it a success as a currency and medium of exchange. We have also designed and executed operations that have transacted hundreds of millions of dollars of real-world investments, ranging from direct exposure to US treasuries to tokenized loans through partners such as Centrifuge.

We don’t believe in working for crypto protocols unless we are certain we can add value to its token holders and users. We only work with protocols with whom we share the aim of meaningfully improving people’s lives by building a better, resilient, decentralized financial system, as peer-to-peer as we can.

Centrifuge

Centrifuge is a decentralized protocol for the financing of real-world assets. Centrifuge was the first to bring real world assets on-chain with Tinlake on Ethereum and the first to collateralize RWA into a stablecoin through integrating Tinlake with the MakerDAO protocol. RWA was first integrated into Aave in 2021 when senior tranche tokens from Tinlake integrated into the RWA Market. Centrifuge is purpose built to support the tokenization and securitization of the most complex asset classes. Rather than simply representing assets on-chain, the technical primitives on the Centrifuge platform are designed to bring the myriad of data processing, third party services, and necessary off-chain components into the on-chain ecosystem.

The Centrifuge facilitator perspective for Aave GHO defines a DAO-to-DAO collaboration that provides a scalable conduit for RWA collateral. An RWA portfolio can be designed to meet the needs of a stablecoin using assets across a range of asset classes. Governed by the Centrifuge DAO, the Centrifuge ecosystem is being developed to provide the technical contributors, asset issuers, and service providers necessary to support such a portfolio.