



The Future of RWAs

A guide to disruption in Real Estate,
Treasuries, and beyond.

Introduction

Tokenization stands as a transformative force within blockchain technology, poised to substantially influence traditional finance sectors and unlock massive potential. Despite its promise, this innovation is still in its early stages and has not yet captured the full attention of traditional financial institutions.

Tokenization refers to the representation of real-world assets (RWAs) as digital tokens on the blockchain.

By bringing RWAs, such as stocks, bonds, real estate, and more onto the blockchain, tokenization imbues these assets with the blockchain's inherent advantages. Moreover, it can be viewed as the next step in the evolution of securitization—the practice of bundling various asset types to create new, interest-generating financial securities. Through tokenization, a vast and diverse range of assets can be digitized and combined to create unique investment products previously unavailable.

In this report we will cover:

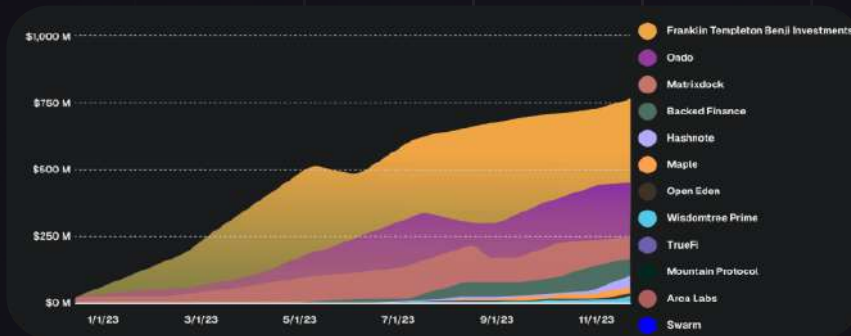
- An overview of RWAs
- Regulatory considerations
- 4 areas ripe for disruption:
 - Real estate
 - Emerging markets
 - Treasuries
 - Revenue-based finance

Part 1

Introduction

Jupiter Zheng, Partner at HashKey Capital writes,

“RWAs allow us to integrate the liquidity, accessibility and programmability of blockchain/crypto into traditional assets. This is exciting because it democratizes access to investment opportunities, improves integrations between the physical world and the digital world, brings better liquidity and it is the future of financial infrastructure. The TVL – Total Value Locked – of RWAs grew six fold over the last year making it evident that the market is paying attention to this sector.



The past 6 months alone have already seen \$750M in U.S. Treasuries arriving on the blockchain. The benefits of this are three-fold:

1. Crypto users can access non-crypto native assets.
2. Developers can integrate these assets into their DeFi protocols to build out new products.
3. Asset issuers can access new markets.

That being said, tokenization is still in its infancy stage. The \$750M of tokenized Treasuries represents only 0.003% of the \$23 trillion in outstanding U.S. Treasuries. Beyond this, comparably small amounts of stocks, bonds, real estate, and other real-world assets are also on the blockchain thus far. This presents an immense opportunity for early TradFi adopters.

In this report, we will provide an overview of asset tokenization, looking at projects like Ondo Finance as examples to illustrate the shift to on-chain assets.

Despite tremendous growth in 2023, only 0.003% of outstanding Treasuries remain tokenized.

Tokenized
Treasuries



Outstanding U.S.
Treasuries

23T



Asset Tokenization

Part 2

Asset Tokenization

Tokenization can be applied to various multi-trillion dollar industries such as financial stocks, bonds, commodities, or real estate. It can even be applied to additional areas like fine arts or accounts receivables.

Its power lies in applying blockchain technology to real-world assets, which suffer from inherent flaws such as:

- **Liquidity & Accessibility:** buying and selling is typically restricted to one's geographical area.
- **Fractionalization:** the inability to fractionalize real world assets limits liquidity & access to potential buyers. For example, minimum gold denominations limit potential buyers in developing nations.
- **Inefficiencies:** high intermediary fees and slow transactional processes.

Crypto-native assets, in contrast, have their own challenges:

- **Volatility:** many on-chain assets are highly volatile.
- **Market Size:** their total market capitalization (\$1.3T at the time of writing) is far inferior to that of real-world assets.
- **Regulation:** DeFi can be viewed as a gray area - having regulated assets come on-chain in a controlled manner helps its legitimacy.

However, blockchain-based assets address all of the limitations of real-world assets. Bringing real-world assets onto the blockchain makes them more liquid, expands their reach globally, enables fractionalization, transactions incur less fees, and they can be transferred much more efficiently.

For example, on-chain commodities can be fractionalized and sold globally with settlement occurring within seconds.

It's the next evolution of global markets, and why capital is moving so quickly on-chain.



DeFi Regulatory Management

As a large influx of real-world assets arrives on the blockchain, TradFi firms must ensure that they are fully compliant with relevant legislation.

Given the lack of clear regulatory frameworks that exist, we consider it prudent for firms to take extra precautions.

Part 3

DeFi Regulatory Management

Regulation is of key concern to many on-chain projects, and various approaches are being taken.

One method entails building internal KYC/AML practices. [Ondo Finance](#) is taking a similar approach to stablecoins whereby its \$USDY token can only be minted/redeemed by approved accounts. The token can then be used throughout DeFi protocols and transferred to parties who have not directly onboarded with Ondo.

[Nocturne](#) takes a different approach. They are permissionless, but use on-chain metadata and analytical tools to screen for high-risk addresses. While they cannot in fact seize or redirect funds, Nocturne can limit their movement. This includes a maximum daily deposit amount which creates friction for malicious parties, and in the future, they will incorporate the ability for parties to be whitelisted.

KYC/AML, on-chain risk mitigation tools, and whitelisting illustrate the direction in which DeFi is moving. It seems that both assets and protocols will have whitelisting capabilities for users, that may or may not require KYC processes. It's also possible that permissioned versions of DeFi projects will exist, but this poses a challenge due to the liquidity requirements. For example, decentralized exchanges fragment liquidity, so permissioned versions may have less liquidity than their permissionless counterparts.

It is possible that those unwilling to comply with safeguards such as the above may face regulatory issues, especially in domains such as the U.S. This may lead to an outflow of business and talent to more lenient jurisdictions such as the U.A.E. or Singapore, although it's likely that these jurisdictions may have their own respective legislation upheld.

As more institutional capital moves on-chain, alongside a great amount of RWAs, there remains significant potential for professional fund managers able to navigate this new domain in a compliant manner. We expect new, innovative approaches to arrive as well, capable of reducing the presence of bad actors while also upholding key blockchain qualities such as anonymity.

That's where Range comes into play.



The Shift to TradFi

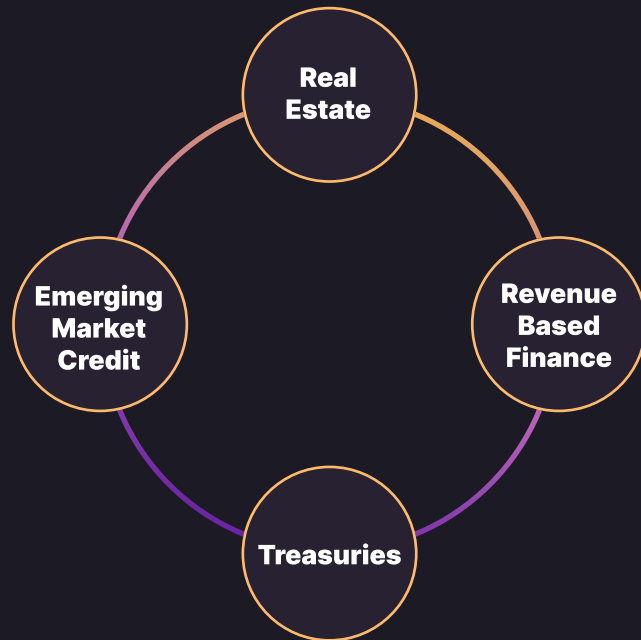
Numerous asset categories are transitioning to the blockchain, presenting significant opportunities for traditional finance (TradFi).

In this section, we will delve into four key asset categories making the shift to on-chain platforms, examining their impact and the reasons TradFi firms should be attentive. We will also discuss the potential of liquidity provisioning strategies, such as the ones executed by the strategists at Range Protocol, to methodically manage these yields.

Part 4

The Shift to TradFi

**On-Chain Asset
Categories
Transitioning to
the Blockchain**



The four categories include:

- **Real Estate**
- **Emerging Market Credit**
- **Treasuries**
- **Revenue-Based Finance (RBF)**

It's important to note that many other asset classes are moving on-chain, such as insurance, agriculture, fine arts & collectibles, regenerative finance, intellectual property. This is not exhaustive by any means, and the true range of tokenized assets is increasing rapidly.

For example, equities are now being tokenized, with J.P. Morgan having tokenized shares from one of its money market funds. This enables them to be used as collateral in an OTC derivatives trade with Barclays, which when deployed at scale, will increase the efficiency of tied-up capital.

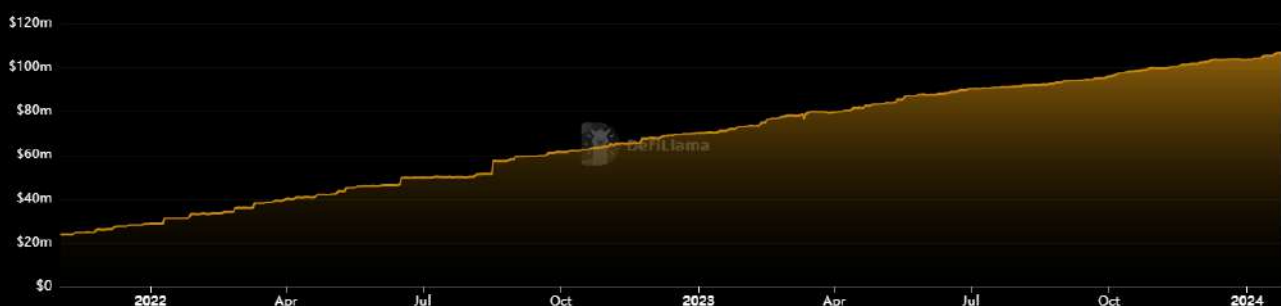
Part 4.1 Real Estate

Real estate is an enormous investment class with a global value estimated at \$380T late 2022. Real Estate Investment Trusts (REITs) are the most popular TradFi investment vehicle for this space, and are companies that own, operate, or finance income-generating real estate. Nearly every asset manager offers some form of REIT to investors, including Blackrock, Vanguard, and State Street. State Street's REIT ETF has 107 different real-estate holdings across the U.S. and the fund is subject to an expense ratio of 0.25%.

Overall, REITs are well-suited for investors with medium-term or long-term investment horizons. However, the cost of switching between REITs can be challenging and subject to lengthy legal procedures, making shorter-term investments ill-suited. Additionally, investment decisions are typically restricted to specific jurisdictions for regulatory purposes, and the expense ratio quickly adds up.

We are now seeing a shift of real estate to the blockchain, and tokenizing even just a small fraction of the global real estate market would have huge implications for the volume of on-chain funds. However, this is also one of the most challenging areas to tokenize, in particular, due to a need for global regulatory coordination and proper tokenization infrastructure. Therefore, we expect this to truly grow in the medium to long term.

One example of an on-chain protocol includes RealT, a project enabling investment into global properties that generate cash flow. Users receive tokens that can be used on RealT's RMM platform, built upon the popular DeFi lending protocol Aave. The platform allows tokens to be used as collateral for short-term loans in the form of the xDAI stablecoin, and RealT has already reached \$90M in TVL. RealT takes a compliant approach by only servicing accredited U.S. investors or those in non-US jurisdictions.

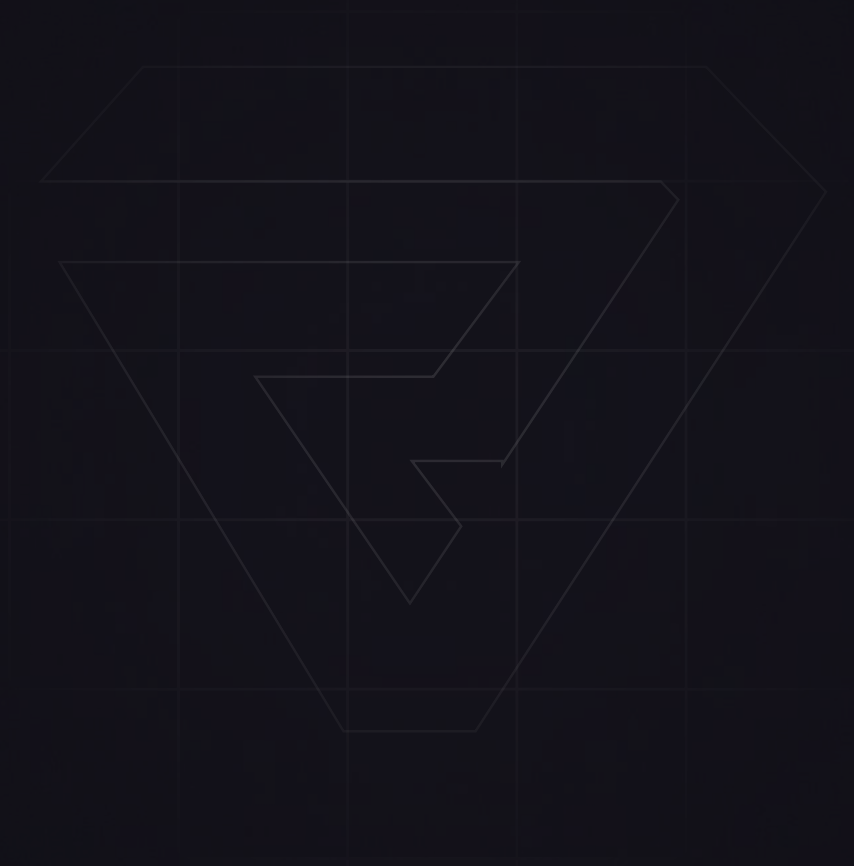


RealT's Total Value Locked, January 2024

The tokenization of real estate has significant implications for TradFi firms.

To begin, those with real estate holdings can compliantly reach new markets by offering access to their investment vehicles on the blockchain. Tokens representing interest in properties are also considered composable, meaning that they can be used throughout DeFi for additional yield. Additionally, real estate holdings can be updated and managed much more efficiently than in TradFi.

Given that real estate is a heavily regulated area, only permissioned and highly secure DeFi protocols are likely to succeed for now. It is unlikely that anonymous, permissionless projects will succeed due to the regulatory nature of the space, and this is another reason that progress may be slower in this space than is hoped for by some.



Part 4.2 Emerging Markets

Emerging markets are continuously the greatest adopters of blockchain, and yet businesses in these countries often struggle to access credit. This is for a variety of reasons, such as lacking the collateral, credit history, or formal financial records that banks require. Alternatively, they may simply be perceived as higher risk due to factors such as economic volatility and concerns over contract enforceability.

Various TradFi products currently exist for investing in emerging market credit.

For example, **Blackrock** has various funds geared towards emerging markets that include both a general debt fund and equity fund, as well as funds targeting specific geographical regions such as Asia or specific countries. Many other asset managers such as Fidelity and JP Morgan have their own versions of these funds, providing investors with exposure to emerging markets. These are either actively managed or passively managed. Actively managed funds are updated periodically, such as every quarter, or when specific events necessitate a restructure. Adding a new risk exposure to the fund typically requires extensive due diligence for a specific firm, with costs passed along to users.

Blackrock's fund is actively managed, meaning it is periodically rebalanced and subject to a Management Fee of 1.25%. Rebalancing tends to be a slow and cumbersome process.

While challenging to estimate the total volume of Emerging Market Funds, they are extremely popular globally. However, their high fees and lackluster returns provide room for improvement on the blockchain, as well as a shift away from large firms having undue influence over investment terms for those in emerging markets.

Let's examine how this might look on the blockchain, where there is increased competitiveness over investment terms, greater capital reach, and streamlined processes.

Let's use [Goldfinch Finance](#) as an example.

Goldfinch is an uncollateralized lending protocol where real-world businesses ("Borrowers") seek financing from Goldfinch and propose their own credit line terms ("Borrower Pools"). Borrowers must be approved by Auditors who do rigorous due diligence on the business. The Goldfinch community supplies capital to these pools as they see fit. The Borrowers may then borrow from these pools in the form of USDC, convert it to their local currency, and deploy it for yield.

All loans are fully collateralized with off-chain assets and income. Those who provide capital also receive an NFT representing their deposit, which can later be redeemed for their specific portion of available repayment. They have \$99M in active loans and have generated \$100K in 30-day revenue.

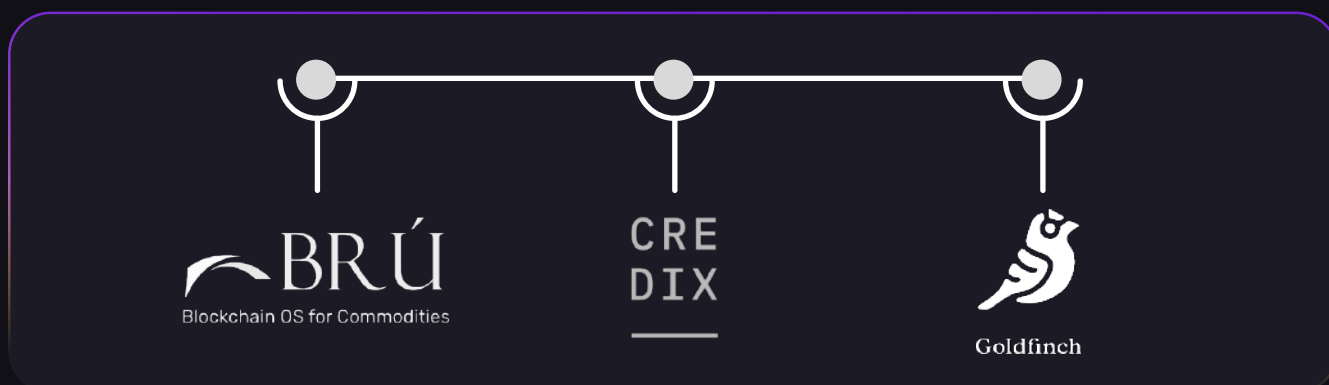
There are two major advantages to this on-chain approach:

- Global access to capital.
- Rather than be reliant upon capital from large institutions, Borrowers can propose their own terms, increasing competitiveness terms and pricing, rather than requiring Borrowers to be compliant with the terms of large players like Blackrock.

As of January 2024, the Senior Pool's APY is 7.60%.

Firms in TradFi should pay attention to on-chain emerging market credit because it provides access to new markets and new yield opportunities. Firms can now access quickly access entirely new risk pools that each come with specific lending terms that may suit their investment preferences.

However, there are also associated blockchain risks, such as smart contract risks (risk in the actual code deployed). There's also the possibility that Borrowers default, such as a \$5M loan default on Goldfinch. They are currently repaying the defaulted loan and it is believed to not have a large impact on Goldfinch as a whole.



Other players in this space include:

- **Credix:** focused on emerging market credit in LATAM, especially for car loans, revenue-based financing, and SMEs. It is a two-sided lending marketplace, and plans to expand to new geographies and products.
- **Bru Finance:** a lending protocol focused on agricultural commodities, but plans to expand into real estate, gold, and more. Over \$650M in commodities have been tokenized and \$150M+ in credit lines have been opened. They have over 1,500 custodians in India but plan to expand into Asia, Africa, and Europe.

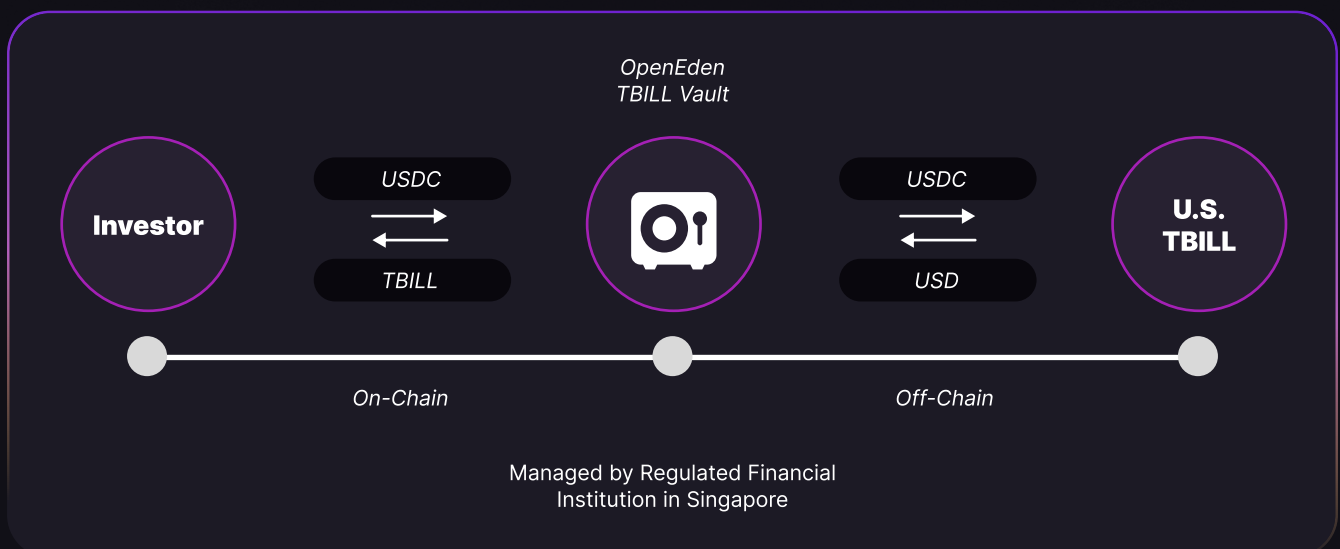
Part 4.3 Treasuries

Over 750M in Treasuries are now on-chain and growing quickly.

TradFi has various structured products providing investors with access to Treasury Bills (T-Bills), such as Vanguard's VFISX or Blackrock's BLF Treasury Trust Fund. These provide easy access to eligible investors, with the typical expense ratio in the range of 0.16% to 0.20%. This is a vast market, with TradFi T-Bills having a total value of over \$23T. A basket of T-Bills are purchased with various maturity dates, creating a blended yield rate.

Given that T-Bills are not very volatile in general, the funds are not very actively managed. Instead, adjustments are normally small and done to minimize interest rate risk. In order to react to interest rate fluctuations, a portion of deposits are held as cash, reducing returns.

Ondo Finance is a good illustration of this, having tokenized Treasuries. Its \$USDY stablecoin alternative represents a tokenized note that is secured by short-term U.S. Treasuries, currently yielding 5.1%. A key safeguard is that it is designed to be "bankruptcy remote", a feature that maximizes investor protections in the event of bankruptcy. USDY is over-collateralized by 5%. This mechanism acts as a price buffer, mitigating the effects of potential short-term price fluctuations on U.S. Treasuries.



They work with leading financial regulators, asset custodians, and auditors, to operate the trustworthy way. For example, registration is under the British Virgin Islands Financial Services Commission, and asset custodians such as Coinbase. To learn more about their institutional credentials, you can visit [here](#).

Nathan Allman, Founder & CEO of Ondo Finance writes,

“ *USDY sees continued growth, offering a compelling alternative to traditional stablecoins that fail to distribute underlying portfolio yield to token holders. USDY not only facilitates earning native US dollar-denominated yield but also serves as a productive asset within DeFi with Range, an Ondo Ecosystem partner, empowering the provision of USDY liquidity across both the Mantle and Ethereum ecosystems.*

The tokenization of T-Bills allows crypto users to access new products that are not crypto-native, while T-Bill issuers may also reach new markets.

While it is true that having T-Bills on the blockchain means that they benefit from blockchain's innate transparency, it can also be argued that professional fund managers are trustworthy as well. Instead, the major benefit can be seen as bringing a real-world asset to an entirely new market, where T-Bills can in turn be used within DeFi products. Furthermore, the market is 24/7, and T-Bill tokens can be redeemed at any time.



Part 4.4 Revenue-Based Finance

There is a significant gap in the market where both individuals and businesses may struggle to secure funding through traditional bank loans or the corporate bond market. Companies like Clearco and Lighter Capital have emerged in traditional finance to fill this need, but they still suffer from fraud risk. A challenge in this space is ensuring that loans are paid with interest, meaning that only high-growth firms with large gross margins typically receive financing. This has also led to issues during market downturns, as declining revenue for firms significantly hurts lenders, which led to refinancing requirements for Clearco.

Moving RBF onto the blockchain is ideal as it is easier to enforce contract guarantees. The use of smart contracts means that contractual terms can be automatically enforced, with cash flow distributed to the lender as per a prearranged agreement.

One example of such projects is Huma Finance, a platform that empowers businesses to tokenize their receivables and tap into global capital markets. The platform prioritizes regulatory-compliance and mandates KYC/AML compliance for both lenders and borrowers. While Huma Finance caters to both business and consumer segments, its primary focus remains on business lending. In a span of just nine months, they have demonstrated strong momentum with over \$100 million loan origination and payback.

Richard Liu, Co-founder and Co-CEO of Huma Finance writes,

“ We're excited to support blockchain-enabled fintechs like Arf and Jia by connecting them with global capital. Innovating with blockchain technologies is incredibly rewarding, allowing us to significantly enhance its real-world impact on individuals and businesses.

What is the potential for TradFi firms?

There is more inherent trust in this on-chain given the ability to implement all contractual terms into smart contracts. For example, a firm that takes on-chain RBF could have a portion of their revenue automatically paid out to creditors, reducing the risk of default and streamlining the entire process. Furthermore, the increased competitiveness (due to the global nature of the blockchain) creates a more efficient market based on worldwide credit. As more crypto-native companies emerge, TradFi companies able to provide lending to them via revenue-based funding may be well-poised to benefit from significant growth in the blockchain industry. For example, despite later trouble caused by Covid-19, RBF firm Clearbanc raised \$300M in their Series B. A comparable blockchain-based protocol could reach even more firms given the global nature of the blockchain, while things remain more transparent.



Range's Role

Range's role is in improving the liquidity of RWA's brought on-chain. Liquidity provisioning strategies are executed by strategists on Range's non-custodial infrastructure, which not only enhances yield for participating liquidity providers but also improves liquidity and trading depth of the underlying pools for traders.

Our team is composed of highly skilled financial engineers and Web3 developers with extensive experience in digital asset trading. We have a proven track record of success, having engaged in market-making activities for over 200 projects and facilitating trades totaling more than \$20 billion through over-the-counter (OTC) markets. Furthermore, we have actively participated as Private Market Makers (PMM) and executed Request for Quote (RFQ) mechanisms, with total PMM/RFQ trades surpassing \$10 billion.

We have launched yield strategies for over 10 pools involving RWA backed stablecoins across multiple chains. Range aims to position itself at the forefront of the RWA space and will continue to explore new strategies to methodically manage the yield of emerging RWA use cases including Real Estate, Emerging Markets, and Revenue Based finance.

To learn more or to contact our team, please [visit our website](#).

In the meantime, you can [follow us on Twitter](#) for updates.