

Structured Finance:

The Material Value-Gain Blockchain
Technology Enables

Introduction

Structured products, while offering customized risk-return profiles and access to derivatives, are hampered by their complex and opaque operational processes. These products have traditionally involved multiple intermediaries, leading to high costs and limited accessibility, with a lack of transparency in pricing and performance data.

Blockchain technology provides a unique solution to these challenges, offering a more modern and efficient approach to structured finance by significantly reducing infrastructure costs, enhancing transparency, and improving accessibility for a broader range of investors. By leveraging the benefits of a distributed ledger, smart contracts and [Markers](#), and tokenization, structured products gain material value as more cost-effective, transparent, and accessible products.



Understanding Structured Products and Securitization

Structured products are pre-packaged investments that typically combine assets linked to interest with one or more derivatives. They are designed to meet specific risk-return objectives by modifying the payment features of traditional securities. These products are often tied to an index or basket of securities and can be customized to include features like principal guarantees, leveraged upside participation, or downside buffers. Returns are usually paid at maturity, contingent upon the performance of the underlying assets.

Securitization is a process where a company transfers illiquid, cashflow-generating assets, such as loans and receivables, to a special-purpose vehicle (SPV). The SPV issues securities to investors, who are repaid from the cash flow generated by the SPV's assets. This allows companies to raise funds using their assets as collateral. Blockchain securitization uses a process called "tokenization" in which illiquid assets held by an SPV are converted into tokens (also referred to as digital assets) that represent individual securities sold to investors.

Current Day Challenges with Structured Products

However, that upside comes with a few significant and notable drawbacks, such as:

- **Pricing and Transparency:** A lack of uniform pricing standards makes it difficult to compare the value of different structured products and their associated costs. Issuers often work pricing into their option models rather than charging an explicit fee.
- **Liquidity Issues:** Structured products generally lack liquidity, meaning they are typically held until maturity and can't be easily sold. The full extent of returns, especially measured against the risk-free rate or other large index fund performance, is often not realized until maturity.
- **High Costs:** Traditional structured product processes involve multiple intermediaries such as brokers, custodians, and clearinghouses, which results in significant operational costs. These costs can range from 1% to 5% of the investment value annually. Issuers may also impose their own charges, which are often covered by initial sales profits. For example, a Morgan Stanley market-linked note had a 10.9% up-front commission, which equates to an annual expense ratio of 1.55%. A JPMorgan Chase capped buffer equity note had an implied commission of 2.91%, or an annual expense of 1.94%.
- **Counterparty Risk:** Structured products are direct liabilities of the issuing financial institution, so investors face the risk of losing their principal if the issuer becomes



insolvent. Unlike fund assets, structured product obligations are paid directly from the issuer's own resources.

- **Regulatory and Systemic Risks:** Securitization, as a core component of structured finance, has been criticized for its complex transaction structures and lack of transparency, which contributed to the 2008 U.S. financial crisis. As was the case in 2008, the complex securitization process that bundled mortgages into mortgage-backed securities (MBS) and other derivatives became so opaque that the risk and long-tail implications associated with these products was not well understood.
- **Lack of Standardization:** There is currently no common standard for many aspects of structured finance transactions and this can create operational hurdles and make apples-to-apples comparisons of different products challenging.
- **Data Transparency:** There is a lack of full transparency and real-time visibility into asset and performance data, which are often manually aggregated by servicers and originators.

Blockchain Technology Benefits Structured Products

Blockchain technology can be the answer to the current challenges associated with structured products and securitization. Blockchain technology offers a range of enhancements to the current deficiencies, including:

- **Improving the Potential for Liquidity & Accessibility:** Blockchain facilitates the tokenization of assets, converting traditional assets into digital assets that represent individual securities on the blockchain. Further, blockchain enables fractional ownership of assets, which makes structured products accessible to a broader number of investors, improving capital formation. Together, these increase the divisibility and accessibility of the assets.
- **Real-time Data Transparency:** Blockchain records all transactions between parties involved in a securitization process. This creates a transparent and immutable record of all cash flows, value streams, and transactions, which allows for faster and more accurate reporting. The increased transparency can also provide better statistical inference, which can make outcomes more predictable. For example, if structured products had existed on blockchains, it's likely that a lack of transparency would not have been a core driver of the 2008 global financial crisis.
- **Operational Efficiency and Cost Reduction:** Blockchain removes the cumbersome manual processes and intermediaries, through the introduction of smart contracts and [Markers](#), which



include code-driven triggers that execute automatically when specified conditions are met. Smart contracts can automate the cash flow waterfall in structured finance, improving efficiency. These technologies also reduce the potential for human errors. By eliminating manual processes and intermediaries, blockchain can reduce infrastructure costs for major investment banks by an average of 30%. This translates to significant savings on the operational costs associated with traditional structured products.

- **Customization and Composability:** Smart contracts, [Markers](#), and blockchain technology enable new product opportunities for issuers, who can create customized financial solutions by combining various assets and derivatives, like digital assets, yield-generating DeFi protocols, and risk-managing derivatives. This enhances the flexibility and adaptability of structured products.

How to Launch Structured Products on Blockchain Technology

Built on [Provenance Blockchain](#), the purpose-built layer 1 best known for being the largest real-world asset (RWA) blockchain with over \$12B in TVL, [NUVA Labs](#) has developed a comprehensive solution to launching and managing structured products on blockchain technology.

The NUVA Labs' structured product solution involves creating digital assets representing real-world assets, backing these tokens with associated data in [BlockVault](#), applying on-chain restrictions via "structures" and [Markers](#), and then securitizing or directly offering these asset components for sale. This process enables automation, standardization, and flexible asset transfers.

The following detail walks through each step of the process, which you can also see in the supporting diagram:

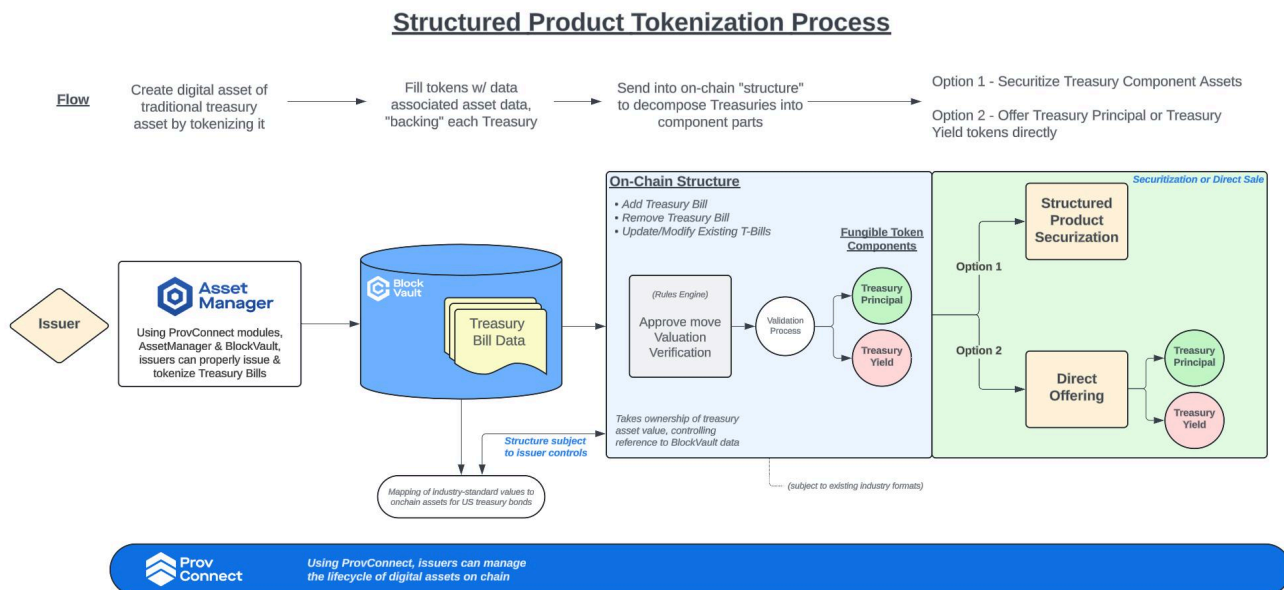
- 1. Register a Digital Asset:** To start, issuers create digital assets used to represent the real-world asset. "At registration, the digital assets are unrestricted, allowing for flexibility in applying asset restrictions, based on the legal impositions and jurisdictional requirements of the issuer." [ProvConnect](#) supports a wide range of asset types, including equities, bonds, debt instruments, receivables, utility assets, and more.
- 2. Upload Associated Asset Data:** Once digital assets have been created, issuers backfill the associated asset data in [BlockVault](#), an encrypted offchain environment that tracks



transaction history, asset data modification, and asset lineage throughout the asset lifecycle, from creation to retirement. Changes to asset data are recorded and maintained by the issuer, and robust access controls guarantee that personally identifiable information and other sensitive asset data is only shared with issuer authorized third parties.

3. Create Digital Asset Restrictions via a “Structure”: [ProvConnect](#) gives issuers the ability to create structures, which are blockchain addresses managed by an issuer to automate business processes, standardize on-chain formats for digital asset data, and decompose complex assets into their component value pieces for creative or unique assembly going forward. Embedded within the Provenance Blockchain are [Markers](#), which are used to create and manage digital asset restrictions, once the real-world assets are digitally native. Business logic can also be maintained offchain within [BlockVault](#), allowing rapid changes in process automation to be applied without requiring smart contract upgrade or modification.

4. Securitize or Directly Offer Asset Components for Sale: Once fully decomposed, assets can then be recomposed into new assets via securitization, or the component assets can be offered to the market directly. [ProvConnect](#) enables restriction or limited transfer within a pool of pre-qualified candidates, offering flexible options for asset transfers, liquidity, collateralization, and portfolio rebalancing and management.





Conclusion

By addressing key challenges such as complexity, lack of transparency, high costs, and illiquidity, the NUVA Labs' structured product blockchain solution enables a more efficient, and reliable infrastructure. Tokenization, smart contracts and [Markers](#), and enhanced transparency streamline processes, reduce costs, and improve risk management. The solution also facilitates the creation of customized financial solutions and a potential for greater market access.

For more information on tokenizing structured products, visit NUVALabs.com or contact our team at inquires@NUVALabs.com.