

# efixDI+

## Protocol Whitepaper

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Tokenized Brazilian Fixed Income with DeFi-Native Yield Enhancement

Version 1.0 — February 2026

**Efix Securitizadora S.A.**  
CVM Act 23.635/2025 · CNPJ 60.756.859/0001-57

**Disclaimer:** This document is for informational purposes only. efixDI tokens represent tokenized fund shares subject to regulatory requirements. DeFi leverage involves risk of liquidation. Past performance does not guarantee future results.

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# 1. Executive Summary

efixDI+ is an institutional-grade DeFi protocol that tokenizes Brazilian fixed-income assets (DI-linked fund shares) and delivers enhanced yields through capital-efficient leverage on decentralized lending markets. The protocol bridges the R\$6+ trillion Brazilian fixed-income market into permissionless DeFi infrastructure.

The core innovation lies in leveraging D+0 (same-day) redemption of underlying DI fund collateral, eliminating the expensive FX hedge costs (2-3% annually) that make competing RWA strategies uneconomical. This structural advantage provides sustainable, non-speculative yield generation independent of crypto market conditions.

Metric	Value
Target APY	25-35% (leveraged, after fees)
Base Rate	CDI ~15% p.a. (Brazilian interbank rate)
Underlying	DI fund shares (ANBIMA certified)
Chains	Polygon (minting) + Base (DeFi leverage)
Bridge	LayerZero V2 OFT Standard
Lending	Morpho Blue (77% LLTV)
Redemption	D+0 same-day via PIX
Regulatory	CVM-registered securitizer
Audit	OpenZeppelin (in progress, ~\$50K)

## 2. Market Opportunity: Brazilian Fixed Income

Brazil's fixed-income market represents one of the largest and highest-yielding sovereign-grade investment opportunities globally. The CDI rate currently stands at ~14.90% p.a. — significantly above yields available in developed markets. DI funds are the most liquid instruments in Brazil, offering D+0 redemption and near-zero tracking error to CDI.

### 2.1 Competitive Positioning

Product	APY	Liquidity	Min Investment	Access
efixDI+ (Leveraged)	25-35%	D+0	R\$ 100	Global
efixDI+ (No leverage)	~12.5%	D+0	R\$ 100	Global
Traditional DI Fund	13-15%	D+0 to D+5	R\$ 5,000+	Brazil only
CDB	10-13%	D+1 to D+30	R\$ 1,000	Brazil only
USDC Lending	4-8%	Instant	\$10	Global
US T-Bill	4-5%	D+1	\$100	Global

### 2.2 The FX Hedge Problem

International investors seeking Brazilian yield face currency risk. Traditional NDF/futures hedges cost 2-3% annually, eliminating most yield advantage. efixDI+ solves this by keeping collateral in BRL-linked assets while borrowing USDC, creating a natural hedge through the lending spread. D+0 redemption enables instant liquidation without the settlement delays that make traditional RWA collateral impractical.

## 3. Protocol Architecture

The protocol operates through five layers bridging TradFi and DeFi:

**Layer 1 — Fiat On-Ramp:** Users deposit BRL via PIX to HausBank. Backend polls deposits every 30s (OAuth2 client credentials).

**Layer 2 — Asset Acquisition:** SPE purchases DI fund shares via Genial IAAS API (/api/fundo/aplicar). Shares accrue daily CDI yield.

**Layer 3 — Tokenization (Polygon):** EfixDIToken (ERC-20) mints 1:1 with confirmed fund purchases. Daily yield distribution increases balances.

**Layer 4 — Bridge (LayerZero V2):** OFT standard: lock on Polygon, mint on Base. MinterBurner contract handles Base-side operations.

**Layer 5 — DeFi Leverage (Morpho Blue):** efixDI serves as collateral in Morpho Blue market (77% LTV). Borrow USDC, convert to BRL, buy more DI shares — recursive leverage loop.

## 4. Smart Contract Infrastructure

### 4.1 Polygon Mainnet (Chain 137)

Contract	Address	Purpose
EfixDIToken	0x0408...6441	ERC-20 token for DI fund shares
EfixVaultV2	0x2eA5...307C	Main vault (deposit/withdraw/leverage)
PIXBridge	0x1d97...f4C3	PIX payment bridge
BRTHSwap	0xfBfC...4800	BRL-pegged token swap
OFT Adapter V2	0x6032...58Fc	LayerZero V2 cross-chain adapter
EfixMorphoOracle	0xD9d2...Ae94	Price oracle

### 4.2 Base Mainnet (Chain 8453)

Contract	Address	Purpose
EfixDITokenBase	0xF5cA...5608	efixDI on Base (OFT mint/burn)
Morpho Vault V2	0xf4A3...CBd5	USDC yield vault
EfixBRLOracleV2	0xFC6a...Ea86	BRL/USD oracle (4h keeper)
MinterBurner	0x400a...B9a3	LZ mint/burn handler

## 5. Yield Enhancement: Leverage Loop Mathematics

Each leverage loop amplifies exposure to the CDI-USDC spread. With LTV=77%:

$$\text{Multiplier}(n) = (1 - \text{LTV}^{(n+1)}) / (1 - \text{LTV})$$

$$\text{Net APY} = \text{Multiplier} \times \text{CDI} - (\text{Multiplier} - 1) \times \text{borrow\_rate} - \text{performance\_fee}$$

Loops	Multiplier	Gross APY	Net APY*	Health Factor
0 (hold)	1.00x	15.0%	12.5%	Infinite
1	1.77x	22.7%	20.0%	1.77
2 (target)	2.36x	28.6%	25.6%	1.49
3	2.82x	33.2%	29.8%	1.38
4 (max)	3.05x	35.5%	33.0%	1.28

\* Net APY after 20% performance fee. CDI: 14.9%, USDC borrow: ~0.67% (Feb 2026).

Yield Sources: (1) CDI accrual on DI fund shares (~15% gross); (2) positive carry spread amplified through leverage; (3) structural FX advantage — BRL collateral appreciates via CDI while USDC debt remains fixed.

## 6. Oracle Design & Price Feed Infrastructure

Oracle	Chain	Address	Update
Chainlink BRL/USD	Polygon	0xB90D...af2c	Chainlink heartbeat
EfixBRLOracle V1	Base	0xF4e2...5aA9	Manual (24h staleness)
EfixBRLOracleV2	Base	0xFC6a...Ea86	Automated every 4h

The oracle calculates efixDI price as:  $\text{price} = (1 / \text{BRL\_USD\_rate}) \times \text{scale\_factor}$ . The BRL/USD rate is sourced from Chainlink on Polygon and relayed to Base via keeper. 24-hour staleness check protects against stale pricing.

## 7. Risk Framework & Liquidation Analysis

**Liquidation Risk:** At 77% LLTV, ~23% BRL depreciation triggers liquidation. Mitigated by conservative 50% LTV target and auto-deleverage at HF < 1.15.

**Smart Contract Risk:** OpenZeppelin audit in progress. Battle-tested libraries (AccessControl, ReentrancyGuard, Pausable). Timelocked admin (86,400s).

**Oracle Risk:** Dual oracle with Chainlink as primary. Staleness protection pauses operations on failure.

**Counterparty Risk:** DI shares at ANBIMA-certified managers via Genial IAAS. SPE structure isolates assets.

Parameter	Value	Purpose
Max LTV	77%	Maximum borrow capacity
Target LTV	50%	Recommended operating range
Min Health Factor	1.15	Auto-deleverage trigger
Performance Fee	20%	Fee on yield accrual
Timelocks	86,400s (1 day)	Admin delay
TVL Cap	R\$ 10M	Phase 1 maximum

## 8. Cross-Chain Architecture (LayerZero V2)

LayerZero V2 OFT standard enables trustless cross-chain transfers. Lock-and-mint: tokens locked on Polygon, minted on Base. 5 efixDI successfully bridged and used as Morpho collateral in production.

Component	Chain	Address	EID
OFT Adapter	Polygon	0x6032...58Fc	30109
OFT Base	Base	0x3D8d...B77	30184
MinterBurner	Base	0x400a...B9a3	—
LZ Endpoint	Both	0x1a44...728c	—

## 9. Morpho Blue Integration

Parameter	Value
Market ID	0x31d6...345a
Collateral	efixDI (0xF5cA...5608)
Loan Token	USDC (0x8335...2913)
LLTV	77%
IRM	Adaptive Curve v2
Vault V2	0xf4A3...CBd5 (USDC, 20% perf fee)
Listing PR	#936 (morpho-org/morpho-blue-api-metadata)

Vault V2 deployed 11/02/2026 via Curator App. Registry abdicated (permanent). Anti-inflation deposit to dead address. Listing PR submitted 13/02/2026.

## 10. Regulatory Compliance

Aspect	Detail
Entity	Efix Securitizadora S.A.
CNPJ	60.756.859/0001-57
CVM Act	23.635/2025
Type	Closed Securitization Company
Instrument	Certificados de Recebíveis (CRs)
Framework	CVM Resolution 60 / Law 14.430/2022
Fund Custody	ANBIMA-certified via Genial IAAS
Banking	HausBank (Bacen-registered)

## 11. Security & Audit Status

85 Solidity files submitted to OpenZeppelin (09/02/2026, ~\$50K engagement). Covers: core tokens, vault logic, bridge contracts, oracles, access control. All contracts use OZ libraries: AccessControl, ReentrancyGuard, Pausable, SafeERC20.

## 12. Roadmap

Phase	Timeline	Milestones
Foundation	Jan-Feb 2026 (Done)	Contracts deployed, Morpho market, LZ V2 bridge, Vault V2, yield tested
Market Launch	Mar-Apr 2026	Morpho listing, Genial IAAS, OZ audit complete, frontend
Scale	May-Jul 2026	\$1M+ TVL, auto-leverage, additional markets, governance token
Expansion	H2 2026	Multi-asset (CDB, LCI), Ethereum mainnet, mobile apps

Upcoming: Stellar Meridian Conference, Abu Dhabi (Oct 2026) — 'Collateral Without Borders.'

## 13. Contact & Links

**Website:** efix.finance

**Morpho Vault:** app.morpho.org/base/vault/0xf4A3...CBd5

**GitHub:** github.com/Ernesto711/efix-pr-repo

**Polygon Token:** polygonscan.com/address/0x0408...6441

**Base Token:** basescan.org/address/0xF5cA...5608

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*Proprietary to Efix Securitizadora S.A. Version 1.0 — February 2026.*