



proClaim

THIS IS THE WAY

Interbank Claims on Blockchain



Executive Summary

Interbank Claims across Securities Services come in various shapes and sizes, from generic Income claims, Stock Loan claims to Treasury claims. What they all have in common, is that they require the bilateral agreement of counterparties, typically Custodians, to reallocate cash proceeds to the entitled party.

The overwhelming majority of Interbank Claims are generated based on predefined rules in established automated markets, with high auto compensation rates, and across a familiar network of 'big banks'. One might assume, given this statement that the process is straightforward and efficient, however with the benefit of 20 years' Asset Servicing experience across several firms, many of those spent reconciling, issuing, chasing and agreeing claims, it is our humble opinion that in reality this is far from being the case.

The logistics involved and repetitive mechanics of one Custodian reaching out to another in order to settle a manual claim are too often onerous, expensive and unnecessarily complex, and herein lies the opportunity. Bringing all parties together to establish a standardized and unified approach is crucial. Automation is of course the other prerequisite and this is where the application of distributed ledger technology provides a unique and immediate opportunity.

Tsotne Bukiya & Eoin Burton

Problem Statement



There is a growing demand from institutional clients and custodians for proactive and real-time resolution of post-settlement claims in the Securities Services space.

The current market infrastructure, transactional risk and operational burdens do not facilitate timely and efficient clearance of claims requiring bilateral agreement between counterparties.



Citi handles a very high number of manual claims across Citi Custody and Markets. Processed across more than a dozen teams globally, comprising up to 85 employees, these claims surpass 190,000 annually.

The non-standardized nature of the process and increasing volumes contribute to high operational costs, which results in Citi spending over \$9 million USD each year on claims management.

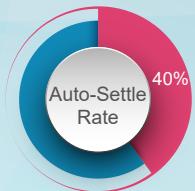
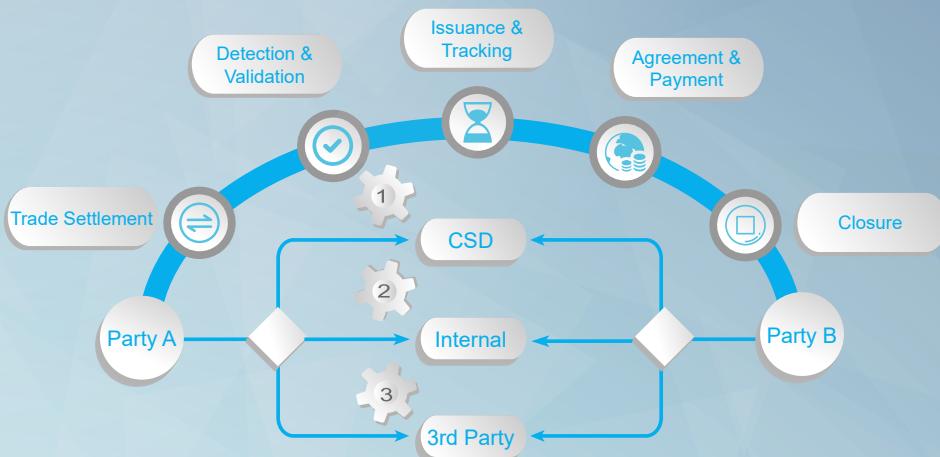


Securities Lending Claims account for 90% of the total value. Global Market Claims reach USD 300 million on an annual basis as well as Treasury Claims worth approximately USD 5 million.



Management cost of coupon and dividend claims is estimated to be in the region of \$150MM across the Securities Services industry, according to Angus Scott, a former head of product strategy at Euroclear.

'As Is' Process



Central Securities Depositories (CSD) offer Auto-Settlement services to custodians, settling claims between their participants. However, numerous factors effect these auto-settle rates, in particular the market infrastructure, with the result that less than half are auto-settled.



Different cases are internally processed by different teams, depending upon claim type, product and market. The process of issuance, claiming, tracking, reconciliations and actual payment result not only in delays, but also in high overhead costs.



The 3rd Party solutions which exist across the industry address only specific sub-sets, concentrating on particular types and markets. These are not currently utilised by the majority of counterparties, of whom there are more than 200, which Citi Custody routinely interacts with.

Market Insight

Apart from the operational burdens posed, Claim handling is a sensitive issue for many of our clients, counterparties and borrowers alike. The disorganised and inconsistent nature of the process impinges upon proactive claiming and timely resolution of cases.

The average claim settlement period for non-autosettled 'vanilla' Income often exceeds one week from pay date, and in certain cases can drag on for months, leaving clients, custodians and counterparties dissatisfied.

The issue is not reserved to Citi, but is prevalent across the industry with all of the global custodians and lending agents facing the same challenges. Until the network as a whole adopts a standardized approach the problems will persist.



250,000+
Emails



11 Days
Average Resolution
Period



Why is it that we have to raise claims in certain markets? Citi as our custodian should raise them proactively.

NAB simply can't believe that two organizations the size of Citi and JP Morgan cannot resolve this.



It seems to take weeks, months for resolution on items we raise ... pretty vanilla claims take 30+ days to resolve.

We estimate the annual cost of managing coupon and dividend claims alone exceeds US\$ 150 million.



We expect a statement from Citi on resolving this claim and explanation.. how Citi will come back to the service we expect from Citi.

The lack of standardization or one global solution needs to be raised as a priority.



Blockchain Use Case

The Technology

Blockchain is a distinct type of Distributed Ledger Technology (DLT), where the input and maintenance of data is controlled on a peer-to-peer basis.



Blockchain

Blockchain, powered by cryptography, allows users to securely exchange encrypted data with 3rd parties. On a public blockchain the distributed nature helps participants communicate with each other over a network with no central authority.

Through consensus algorithm users validate encrypted transactions on the network and store them in a blockchain.



Smart Contracts

Smart Contracts, one of main features on the Ethereum Network, are computer protocols that digitally facilitate, verify or enforce performance of a contract without involvement of 3rd parties.

In a Smart Contract approach, an asset is transferred into a program and the program runs this code, automatically validates certain conditions and determines whether that asset should go to one party or back to the other.



Stablecoins

Stablecoin/Central Bank Digital Currency (CBDC) is a type of cryptocurrency pegged to the value of another stable asset, usually fiat. The entity behind the stablecoin sets up a “reserve”, securely storing the asset backing the stablecoin.

Such reserves are maintained by independent custodians, central banks and are regularly audited for adherence

Potential Usage

The Post-Settlement Claiming process involves parties independently validating and reconciling trade records with each other.

Private Blockchain allows for secure data sharing between parties. Unlike public networks, private blockchain is an invitation-only network, governed by a single entity. It enjoys a higher level of privacy and multiple layers of security.

In this ecosystem, parties reconcile data on a single network using private keys, restricting access to just the parties involved.

While processing claims, a “pseudo” Smart Contract approach is used on a daily basis. Both sides compare records with their counterpart and based on a specific logic/condition confirm validity of a claim and settle it.

In a Blockchain network, Smart Contracts replace the manual work carried out by operations and automatically enforce transaction or settlement once the required conditions are met.

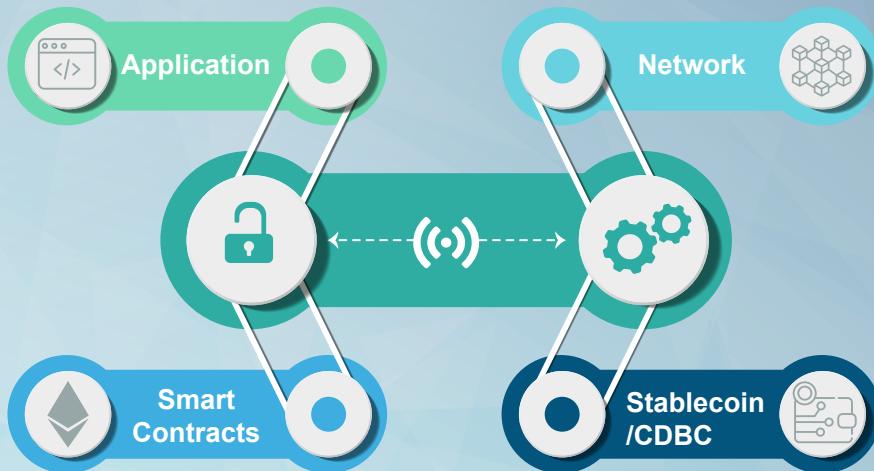
The Claims process involves hundreds of thousands of wire transfers. These result in tens of millions of dollars wasted on transaction fees. SWIFT transfer usually takes 1-2 days to settle, delaying the process even more.

Within a private blockchain, stablecoin is a perfect mechanism for enabling free and real-time transactions.

Introducing proClaim

Application managing process flow:
claims detection, issuance, tracking
and closure.

Ethereum smart contracts
establishing STP settlement of
claims.



Blockchain network, where participants share encrypted data and agree on its validity.

Stablecoins and CBDCs, representing fiat and facilitating transfer of value.

proClaim: a blockchain based platform, powered by a decentralized network and smart contracts, with the potential to secure an almost 100% STP settlement peer-to-peer. An “offline mode” option for conventional settlement will be available to participants tied to legacy platforms and as a precursor/alternative to the blockchain solution.

proClaim’s backbone is a Tokenized Claim (to funds). Using private keys, once participants connect their data to the decentralized ledger, smart contracts will validate claims and create a Token on the chain. An atomic swap will immediately occur, with the Token exchanged for Stablecoin (or CBDC via interoperability with Central Bank networks) and instantly burned. Settled Claims will be imprinted into the block of transactions and stored on the blockchain, providing full auditability.

The whole cycle of post-settlement claims comes down to minutes, completely reengineering and standardizing the claims process across the entire ecosystem.

Market Comparison

	Meritsoft	DTC Claim Connect	SetClaim Euroclear	Equilend	Pirum	IHS Markit	proClaim
	Claim Type	All	Market & Lending	Market & Lending	Lending	Lending	Lending
	Market	All	DTC	Euroclear	All	All	All
	Network Agnostic	✓	✗	✗	✗	✓	✓
	Online Matching	✗	✓	✓	✓	✓	✓
	Messenger System	✗	✗	✓	✗	✗	✓
	Cross Border Cash Settlement	✗	✗	✗	✗	✗	✓
	End-to-End STP	✗	✗	✗	✗	✗	✓



Claim types handled by application/platform: securities lending, market claims, treasury claims, etc. The optimal claim solution should be providing service for all types.



Markets supported by application/platform. Some vendors are restricted to only specific markets.



Tools necessary for off the network claiming and connectivity to legacy systems , accounting for non-platform counterparties.



Online engine, ensuring automatic matching of claims between counterparties.



Inbuilt messenger system allowing parties to communicate without external messaging systems. Existing vendors provide comment updating, not messaging.

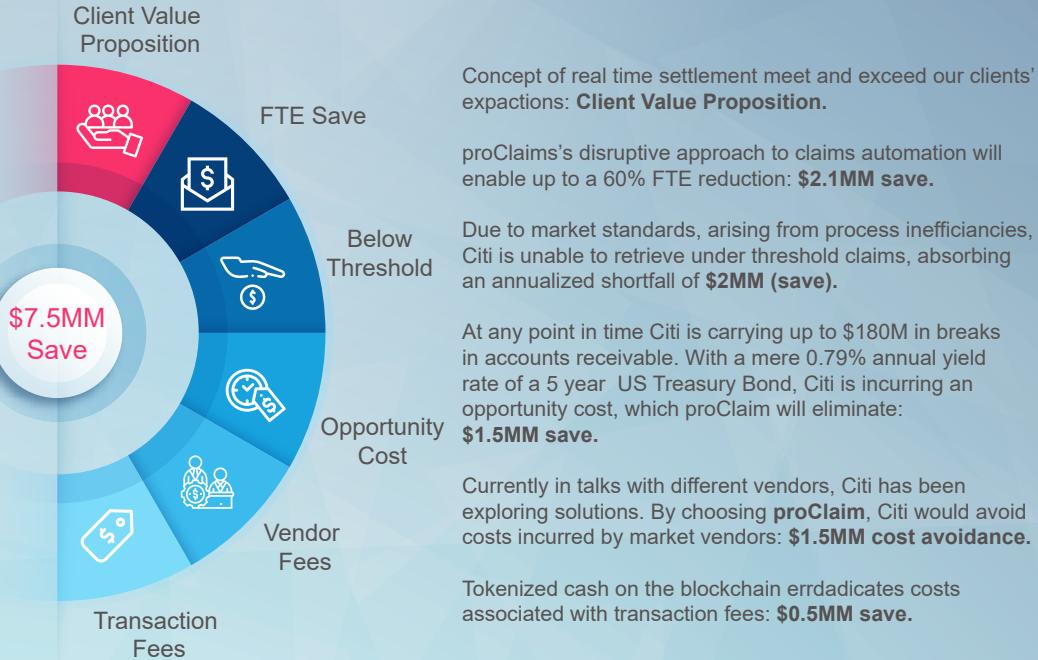


Inbuilt digital cash settlement without need for wire transfers or external payment systems.



Complete Straight Through Processing from capturing participant data, recognizing claims, streaming to the network, matching, tracking, settlement and cash transfer with no manual intervention whatsoever.

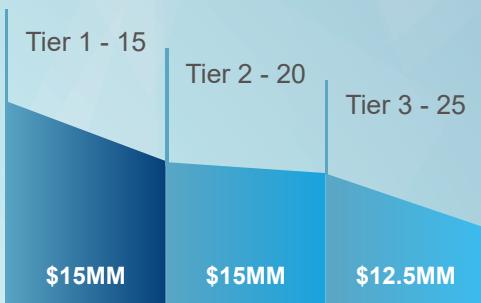
proClaim Benefits



As a consortium, proClaim will be generating returns for its stakeholders under the following proposed revenue model:

- 1) Annual License Fee of \$300K
- 2) Additional cost based on claimed volumes:
 - A) High volumes Clients: \$700K - Tier 1
 - B) Medium volumes Clients: \$450K - Tier 2
 - C) Low volumes Clients: \$200K - Tier 3

With 15 Tier 1, 20 Tier 2 and 25 Tier 3 participants, proClaim would generate around \$40M USD annual revenue.



\$40MM Revenue

How?



Initially a proof of concept (PoC) is to be designed: a minimum viable product (MVP) to showcase proClaim in action. A partnership with a FinTech company is recommended to deliver a cutting-edge platform.

SETL Labs, a digital solutions company, have developed enterprise blockchain solutions for Market Infrastructure, Asset Management and Payments. SETL have already partnered with Citi while working on a Euro CBDC along with Banque de France. The SETL network and their development on digital currency can be leveraged.

ConsenSys is another blockchain software company founded by Joseph Lubin, co-founder of the Ethereum network. The company specializes on private blockchains and CBDC developments. ConsenSys has been chosen by many institutions such as JP Morgan, NAB & Microsoft.

Our recommendation is for proClaim to be built on an Enterprise Ethereum private blockchain, which has the advantages of a decentralized ledger and is also tailored to privacy needs of banks.

A blockchain operating system developed by Consensys, Codefi offers a wide range of tools for financial institutions. Built on Ethereum, Codefi provides the ability to digitize processes, payments, assets, etc. Considered by many to be the best blockchain solutions provider, ConsenSys is a recommended FinTech partner.

We propose a partnership across ICG, between Security Services and Markets. A collaboration would be beneficial to both groups given our combined volumes, particularly with respect to Agency Lending claims, as well the shared need to optimize the associated operational processes.

Why?

i Industry Wide Gap

There is a clear gap in the marketplace with only partial and costly solutions available.

The claims issue is not reserved to Citi Custody only, as counterparties across the industry struggle with their own analogue processes. Several are attempting to develop internal solutions or are using 3rd party applications, such as Meritsoft's Claims Manager, to alleviate the pain points of claiming.

Euroclear Setclaim, and DTCC's ClaimConnect are attempting to tackle parts of the problem, but within their specific jurisdictions. Pirum offers a platform, but tailored to Securities Lending only.

i Immediate Need

Clients are dissatisfied and have challenged Citi Custody to improve.

We must address and standardize the historically overlooked claims process from a risk, cost, efficiency and client standpoint. The current processing model is a relic of the past, involving countless emails, reconciliations, delays, transaction fees and inevitably manual errors.

i First Mover Advantage

The train is leaving the station.

Blockchain technology stands to overhaul the current infrastructure and ecosystem. However, with fundamental changes not anticipated within the next 5 years, proClaim could serve as a catalyst and launchpad for more far-reaching use-cases across the Custody and Asset Servicing industry.

i Hedged Outcome

Transforming our claims process, whilst developing a blockchain solution.

At a minimum, we develop an application to automate and standardize the way claims are managed by Citi Custody. While building the digital infrastructure for proClaim, we will also open the door to further and inevitable implementations of blockchain technology within Citi Custody.

Wireframe

The wireframe depicts the proClaim dashboard interface. On the left is a vertical sidebar with a dark blue header containing the 'proClaim' logo and the tagline 'THIS IS THE WAY'. Below the header, the sidebar lists navigation items: DASHBOARD, CLAIMS, CBDC, LEDGER, MESSENGER, LEGACY TOOLS, WORKFLOWS, and SUPPORT. A large circular gauge at the bottom of the sidebar displays '\$32.56 M' with the label 'CBDC Balance' underneath.

The main content area features a top navigation bar with standard browser icons (back, forward, search, etc.) and a user profile section for 'JOHN SMITH'.

The dashboard is organized into several data cards:

- Key Metrics:** STP Rate (92.5%), Counterparties (235), Claims Settled (31,124), and Total Value Settled (\$ 1.125bn).
- Top Counterparties:** A horizontal bar chart showing top counterparties: JP, CGML, BNY, DEUTSCHE, and BARCLAYS.
- Average Amount:** A histogram showing the distribution of average amounts: \$ 70K, \$ 15K, \$ 68K, and \$ 0.2MM.
- Queries:** A donut chart showing the count of queries: 26 (teal), 23 (pink), and 17 (orange).
- Annual:** A bar chart showing annual data across LENDING, MARKET, and TREASURY categories for the years 2019, 2020, 2021, and 2022.
- Today:** A donut chart showing the value of \$180,347.
- Volumes:** A heatmap showing volume data across a grid of 01 to 09.
- Latest Settled:** A table listing the latest settled transactions:

Lending 567894385	BNY	+ \$32.56K
Market 567894384	CGML	- \$0.2MM
Lending 567894383	NOMU	+ \$0.5MM
Treasury 567894382	UBS	+ \$250
- Outstanding:** Three circular progress indicators showing outstanding counts: LENDING (68), MARKET (33), and TREASURY (21).