

Re-DeFi-ning the post trade landscape within capital markets



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'The industry spends \$131 billion on post-trade settlement and servicing, driven by stubbornly high levels of inter- and intra-firm reconciliation, a lack of operational scale and an archaic and overly complex asset-servicing stack.' Capital Markets Vision 2022 – Accenture, 2017

This was one of the headlines in the Accenture paper of 2017 titled 'Capital Markets Vision 2022', which outlined what the capital markets landscape could look like five years out. And whilst some of their other predictions may well have become reality, it is fair to say that little progress has been made on reducing what seemed at the time like an eye-watering – but realistic – cost. In fact, given some of the macro challenges the industry has faced since the article was written, it wouldn't be unreasonable to predict that this number has actually increased from when it was calculated. Numbers such as these can be easily discounted by leaders as being too high level or not specific enough to drive industry action, but they do signal one of the fundamental challenges for the capital markets industry as a whole. That of an industry wide cost base which is driven by system and process complexity, is heavily reliant on people to perform manual processes and one where automation levels are so low that emails and spreadsheets form the backbone of processing capability.

Anecdotally this problem is also evident across the marketplace – even relatively sophisticated tier one investment banks have at least 5-6,000 people in operations, some global custodians have more than 20,000 operations staff supporting their global businesses and even asset managers maintain post trade teams in the hundreds to support their activities. Poor data integrity and complex processes continue to put pressure on what are typically time-sensitive activities, with industry solutions (such as collaborative tools and platforms) still being relatively nascent in terms of implementation let alone impact. Alongside this process complexity, legacy technology continues to offer low levels of automation, where system fragmentation compounds the problem due to local data sources and limited inter-operability internally. Research by IHS Markit found significant 'fractionalisation' of post trade platforms – with more than of 50% processing sitting across multiple specialist platforms¹. Poor process design, bad data, multiple systems, and low levels of automation do not make for an industrialised process...

Against this backdrop of slow progress – the post trade landscape in 2022 looks relatively unchanged from the 2017 observations in Accenture's report – the industry appears to have placed post trade automation in the 'too hard to fix' bucket. Is best in class now merely being less bad than your peers? Is success measured in incremental gains that bots or tactical automation can bring to the battalions of operations staff grappling with poor data and manual tasks? Or maybe gradual (even glacial) renovation of legacy technology supports operating model redesign that takes an organisation from maybe 10,000 staff in post trade roles to perhaps 9,500?

¹ Transforming Legacy Tech – The Case For Calling Time. IHS Markit

But for an industry that spends **\$131bn** on post trade processes, is that really the end of the journey? Are there any opportunities to remove cost and complexity to unlock value that can improve the bottom line? This has to be an ongoing challenge for the industry where the economics around cost income ratios and return on equity are under constant pressure for all but the global, universal players. Just as the big-bang created a catalyst for transformation back in the 1980's, capital markets in the 2020's needs something similar to disrupt inertia and drive forward industry change. Industry working groups and good intention have failed to create a case for transformation, where regulators seem to be the only pressure point to enact industry wide change. But there is cause for optimism, as the industry is about to shaken up by a force that will ultimately cut through inertia and deliver meaningful change across post trade. That something is 'DeFi' (de-centralised finance).

Learning from crypto – How 'DeFi' disrupts post trade

DeFi is, in its simplest form, the technology that underpins the digital assets that have become increasingly mainstream over the last five years. Leveraging distributed ledger technology, it has created a powerful use case for the future of post trade processing through adoption by crypto-asset platform providers. As these assets have become increasingly institutionalised, many of the services that are commonplace within traditional finance (TradFi), such as margin lending and collateralisation, have been developed to service investors. What this has shown is the art of the possible, where features such as instantaneous settlement, automated margining and collateral mobilisation have been enabled through modern technology. Not only do these features bring efficiency to the trade lifecycle, but they arguably improve risk management as well – 24/7 availability of trading may sound uncomfortable from a support perspective but this actually enables risk to be managed continually rather than waiting for markets to open. And high degrees of automation remove the requirement for people to step into the process, where collateral for example can be easily moved around instantaneously.

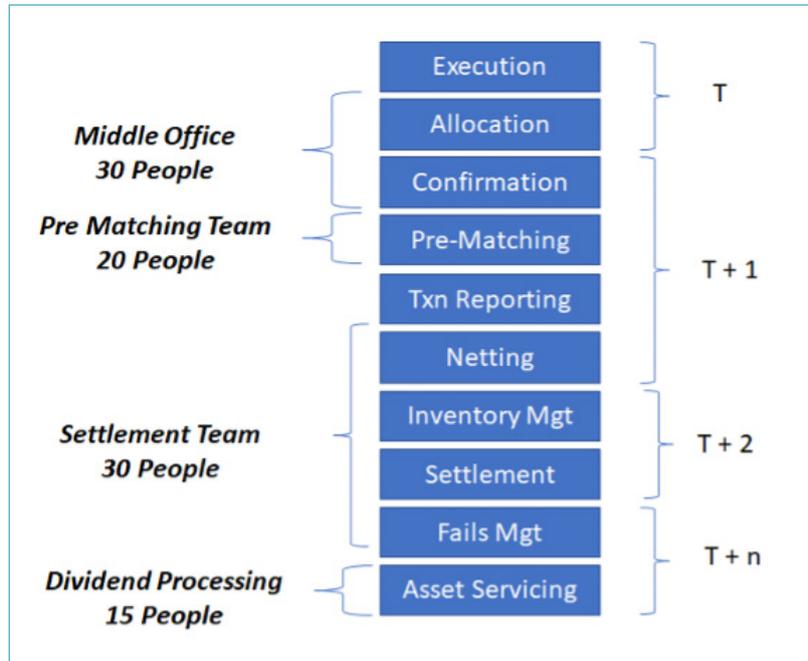
Alongside enhanced risk management that automation brings, DeFi has also shown how much more efficient it can be in terms of trade processing. The instantaneous nature of trading and settlement makes a lot of current post trade processes redundant – removing much of the cost and complexity that exists today as counterparties bilaterally exchange information to support the settlement process. By way of example, counterparties must exist within the network and be authenticated to transact, removing the risk of KYC or AML tasks not being complete and the associated reference data being unavailable to process the transaction. Allocation data must be available at the point of execution to support settlement, not a post trade enrichment process where information is emailed and processed after the block has been executed. And the assets to be transacted must be available on the network to enable trade execution, not located or transferred in at a later date to enable settlement. All of these current post trade processes drive manual effort, all contribute cost to the trade lifecycle, and all drive the requirement for a gap between trade date and settlement date to ensure these tasks are completed (referred to as T+1 or T+2).

The convergence of TradFi with DeFi may seem some way off for many market participants, but the reality is that progress is already starting to be made. Mainstreaming of crypto-assets will bring the world of DeFi quickly into the capital markets domain and the efficiency benefits of the underlying technology are already being utilised to bring innovation into the capital markets arena.

So what does this all mean for the \$131bn problem in post trade? And what could the future look like? Let's take a look at a hypothetical example for securities settlement.

The diagram below shows an illustrative example of the processes performed, the timing and the headcount associated with the settlement and asset servicing for a securities transaction. The headcount numbers are illustrative but are typical of a small tier 2 investment bank. 'T' in this example refers to trade date and the '+n' is the number of days after trade date that these processes are typically performed on up until settlement date. What this shows are the stages within TradFi that a securities trade goes through from execution to allocation and then settlement, along with the headcount in support of the process.

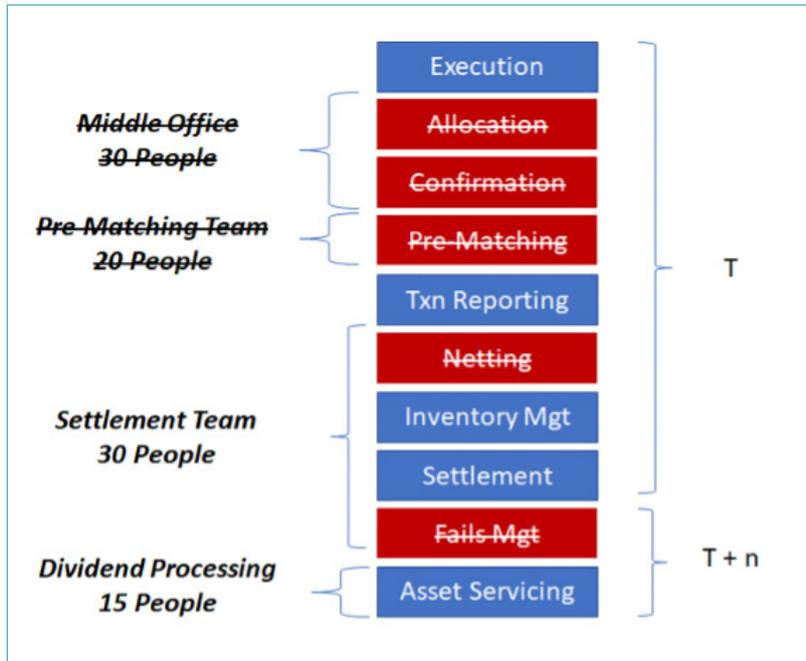
TradFi Securities Settlement Process



Many of the work drivers for the process involve the bilateral exchange of information between the bank and its client to agree and match the economic terms of the trade (allocation, confirmation and pre-matching). Internal work is then required to ensure that the inventory (cash or securities) is available in the right place to ensure settlement can then occur. Netting of transactions (for efficiency and risk mitigation) may also take place during the settlement process. All things being equal, the transaction will then settle on the projected settlement date, but some (up to 5%-10%) of transactions will fail due to exceptions not being resolved within a timely fashion. Post settlement, the transaction then may not complete as dividend processing (claims or payments) could be required to ensure any income is processed correctly.

But let us then take a look at what this same process could like in the world of DeFi, where much of the processing within post trade becomes effectively pre-trade validation – so not removing it entirely but removing the requirement for exception management that occupies 95 people within this example.

Securities Settlement Process Under DeFi



The requirement for up-front allocation details to be provided at point of execution (a fairly significant change to the bulk of current practise) removes the post trade affirmation whilst the confirmation process also becomes redundant, as the ledger entry effectively creates the legally binding contract. Inventory (cash or securities) must be available at point of execution, forcing this to be sourced pre-execution rather than post. And whilst netting is viewed as a major benefit of TradFi processing (for a variety of good reasons), the very nature of DeFi in its current form could render this unviable. Much of the current value of netting (settlement risk mitigation, collateral efficiency) needs careful thought anyhow within this new paradigm, where instantaneous settlement and collateral mobility will challenge traditional thinking about risk management. Fails by the very nature of the infrastructure that supports the settlement process become a thing of the past, as availability of inventory and associated reference data (a key exception driver in TradFi) become no longer relevant.

Traditional roles around inventory management, settlement oversight and asset servicing will still persist in this model, but roles will be re-defined given the way that DeFi operates. Much of the focus shifts to pre-trade validation and collateral management rather than the bilateral exception management that persists today. And regarding asset servicing, this role becomes very much one of oversight and exceptional cases (such as voluntary corporate actions) as opposed to processing due to smart contracts driving eligibility, calculation, and settlement of income.

Even taking a conservative view on how headcount will need to be redeployed within this new processing model, it can be seen that process redundancy removes over half of the people required to support the transaction lifecycle. Alongside the headcount redundancy, we should also consider the applications within the post trade stack that also become surplus to requirements – why would a confirmation or allocation platform be required when the ledgers themselves create the relevant legal certainty? Post trade systems will still need to exist as books and records, but much of the processing that they currently support will be made redundant by the automation provided within the DeFi network. So, simplification of technology systems will add further benefit alongside the simplification of process.

So, what does this all mean in practice?

Even within this basic example, the transformation that DeFi will bring to operating models is clear to see – in our example, approximately 50% staff reduction. Much of the bilateral information exchange, reconciliation and exception management is removed by the mechanics of distributed ledger technology. The trade execution and settlement process become automated, removing the requirement for ongoing manual intervention within the trade lifecycle. And the role of post trade becomes increasingly one of collateral management (are cash or securities available?) and operational readiness (are all parties permissioned on the network?) rather than solving data mismatches.

DeFi will enable a transformative change to the world of post trade that we know today – bringing automation, process simplification and technology rationalisation. But also, fundamentally changing the economics of the industry. Why?

Let's take as a reference point Coinbase, who provide execution, custody and prime services for crypto assets. It has just 3,730 employees operating their entire business which covers 89 million retail users, 11,000 institutional customers, generates \$7.8bn of revenues and custodies \$289bn of crypto assets². This headcount covers all of the front, middle and back-office functions that Coinbase needs to support their day-to-day activities and shows just how efficient DeFi is when compared to an equivalent business model within capital markets today. As by way of comparison, some mid-sized investment banks have more people than this supporting just their post trade activities... let alone staffing numbers in any of the other functions that support their business.

What this signals is how DeFi can disrupt and provide a catalyst for transformation – and also, given the example of Coinbase, the potential efficiency it can bring to mainstream capital markets. This revolution will not be overnight, but there is sufficient evidence from the crypto-world already around how it can look to solve the \$131bn problem that currently exists within post trade. And given the pace that crypto-assets are moving at in becoming mainstream, the risk for the TradFi eco-system is that it misses the opportunity that this technology can bring. Industry leaders need to be looking at these signals and understanding how to be part of the revolution, not a casualty of it. As failure to act will render them at a significant (and ultimately terminal) disadvantage to their peers.

² Coinbase Annual Report, SEC Filings, February 2022

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