

SMART LEDGERS (AKA BLOCKCHAIN) & ALTERNATIVE INVESTMENTS

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TWO TOO HOT TO HANDLE?

Two topics in finance have been hot recently. Smart Ledgers (aka blockchains) are the technical rage. Alternative Investments are the asset class rage. What are the possible implications, if any, of Smart Ledgers on the alternative investments industry?

Smart Ledgers are based on a combination of mutual distributed ledgers (aka blockchain: multi-organisational databases with a super audit trail) with embedded programming and sensing, thus permitting semi-intelligent, autonomous transactions. Smart Ledgers are touted as a technology for fair play in a globalised world. Smart Ledgers are perhaps most famously applied as cryptocurrencies, but there are numerous projects building identity, document, and agreement exchanges. There are numerous announcements from governments and firms in finance, shipping, media, law, IT, and the like, attesting their exploration of such systems for trade and commerce.

Financial services firms have clearly paid attention to the challenges that Smart Ledgers might pose for traditional payment systems. That said, there are serious doubts that today's slow (20 seconds to 10 minutes are not uncommon transaction times) and expensive (several dollars per transaction) implementations such as Bitcoin or Ethereum pose an immediate threat. However, Smart Ledgers support many other applications other than cryptocurrencies. Some of these applications run swiftly and cheaply, ranging from timestamping and geostamping to novel identity systems meeting the EU's new General Data Protection Regulation (GDPR). A general way of looking at Smart Ledgers is as identity, documentation, and agreement exchanges, as outlined in the table below:

Theme	Application
Trust	Identities – authentication and recording
Space	Documentation – data utilities and transaction records
Time	Agreement – contract records and validation
Mutuality	Exchanges – pooling, netting, and control of systemic risk

The term 'alternative investments' describes asset classes being an alternative to traditional, publicly-traded equity shares, bonds, currencies or liquid fund units. Alternative Investments are usually unlisted and illiquid. Examples include investments in private equity, private debt, infrastructure, real estate, commodities and hedge funds. Alternative investments are typically more complex and less automated than traditional investments.

Since alternative investments are not standardised and often involve complex multi-level and cross-border acquisition structures, each investment is usually comprised of gigabytes of various documents such as fund documentation (e.g. Articles or Offering Memorandum), transaction documentation (e.g. subscription agreements, terms of financial instruments), pre-investment assessments (e.g. due

diligence reports, investment proposals) and investment data (e.g. financial statements, operative controlling reports). This information is frequently dynamic and often subject to updates at different points in time.

As opposed to traded investments where there is a central institution (e.g. exchange, clearing house) recording the latest relevant data about the investment and distributing it to all market participants, alternative investments data are exchanged directly between the parties. If the data change, one party (e.g. asset manager) has to distribute new data to the other parties who in turn have to actively update their records. Many market participants currently distribute data in a significant number of emails and store the information in copious folders. It is not required to be an expert to understand that this process might be inefficient and vulnerable to errors.

The operational involvement of investors in traditional assets is somewhat routine i.e. their activities predominantly consist of buying or selling the investment in a standardised way. Alternative investments can actively involve a lot of market participants, such as asset managers, banks, Alternative Investment Fund Managers (AIFM), insurers, pension institutions, loan agents, depositories, brokers, and regulatory authorities, as well as auditors, lawyers and tax experts. Different participants need different data and can provide active feedback such as suggestions for document changes at the same time.

For things as diverse as wind farms, aircrafts, IT start-ups and art, the level of complexity is high. In turn, complex processes include meeting investment regulations, investor regulations, tax, accounting, anti-money-laundering. Further, transaction processes for subscriptions, redemptions, capital calls, execution of voting rights, valuation, and reporting are all more complicated. This complexity increases operational inefficiencies and create business opportunities for service providers whose fees reduce the net return from the investments.

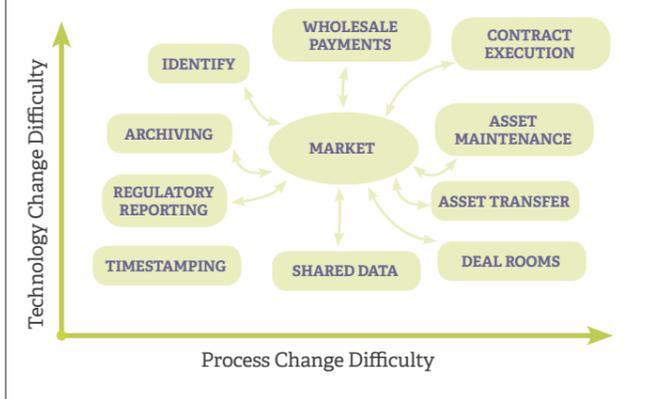
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Diversity makes it difficult to define standardised processes and systems. Diversity also makes it difficult to get a large enough payback from system efficiencies. Large institutions used to working with traditional liquid investments find their existing systems can't cope with alternative investments. The degree of automation for alternative investments is consequently low. Intensive manual work combined with administrative duplication leads to high costs, lower revenues, and greater risk of operational mistakes, poor investments, and regulatory fines.

LOOK THE ALTERNATIVE WAY FROM PAYMENTS

The lack of monopolistic central third parties and incumbent automation provide great opportunities for Smart Ledgers as multi-organisational databases. For example, it would be straightforward to take the multifarious emails and documents and place them in a shared 'deal room'. Such deal rooms exist today, but a central third party has control over the data and charges for the service. A Smart Ledger could be used as an 'unowned' or 'mutual' utility. It could range from basic timestamping of documents, i.e. everyone has to store their own documents, to a large deal room being the definitive archive. Basically, certified email and storage, but without giving any party a central role.

Another simple example might be data sharing. This could run from something as simple as organisations 'broadcasting' their Legal Entity Identifiers (LEI) onto a Smart Ledger for others to retrieve, to reporting positions to a Smart Ledger which would then produce anonymised or semi-anonymised data to the market or to regulators, without giving an information services provider a new line of business. The table below sets out some thoughts on areas for Smart Ledgers and alternative investments:



Function	Approach	Difficulty
1. Timestamping	Simple Smart Ledger recording 'hashes' of documents, effectively a certified email	low
2. Shared Data	Using structured data repositories	low
3. Regulatory Reporting	Creating a shared utility to meet regulatory demands	low
4. Deal Rooms	Timestamping with document storage (possible role for central third party on storage)	medium
5. Archiving	As with deal rooms, but arrangements for long-term storage with central third party	medium
6. Identity	Using 'smart' program elements to handle data permissioning amongst market participants, especially relevant for anti-money-laundering and know-your-customer	medium
7. Fund Set-Up & Transactions	Dynamic change and exchange of fund and transaction documents	high
8. Ongoing Asset Management	<ul style="list-style-type: none"> tasks (e.g. reporting schedules, payment schedules) could be assigned, transparently recorded and tracked; voting rights can be executed reports and data generated in each task can be exchanged 	high
9. Wholesale Payments	Potential for new payments systems disintermediating some banks	very high
10. Contract Execution	Permitting complex portfolio swaps and parametric risk sharing on trigger conditions (e.g. smart beta and other passive strategies)	very high

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LEDGER-DE-MAIN

Ledger-de-Main Smart Ledgers may significantly reduce operational costs (less mistakes, less double work, fewer people, less service fees) and improve processes (more transparency, faster processes, better controls). Financial services providers such as Alternative Investment Fund Managers may be the biggest winners here as they should be able to reduce costs and risks more easily, and thus attract more business. On the contrary, the biggest losers could be intermediary service providers whose roles and fees would be reduced or eliminated by the new processes supported by Smart Ledgers.

Smart Ledgers are here already in timestamping applications. Their use will increase, though slowly. Take-up will be slow because Smart Ledgers are technically a bit more complex than today's databases. Smart Ledger benefits emerge from multi-organisational interactions, and multi-organisational projects are more complex and take time.

The main value and risk driver at the same time are the organisations themselves. It all hinges on the question whether organisations are willing to operate in decentralised networks where a high degree of trust is required between the network participants. Therefore, the main challenge might be not the technology but collaboration abilities between the organisations.

In order to build a decentralised network, two special roles, a project initiator and the project manager, might be required. The project initiator would gather the relevant network participants from the industry and regulatory authorities and initiate the project. Professional investment and investor associations might be suitable for this role as the project would benefit their members. Once the project started, the project manager would coordinate and monitor the tasks between the project participants. The project manager would require a high expertise in both Smart Ledgers and alternative investments.

Smart Ledgers can provide real benefits in multi-organisational environments by reducing process complexity without creating overly strong central third parties. However, the Smart Ledgers would require somebody to initiate and to manage the multi-organisational project. Smart Ledgers may be a 'slight on simplicity', but they are certainly not 'sleight of hand' ●

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Professor Mainelli has been one of the earliest thinkers and movers, as far back as the mid-1990s, in distributed ledger technology (upon which Bitcoin and blockchain were later based). Z/Yen Group remains at the forefront of developments in this area, assisting high-profile clients. His book 'The Price of Fish: A New Approach to Wicked Economics & Better Decisions' was the winner of the 2012 Independent Publisher Book Awards Finance, Investment & Economics Gold Prize.

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