

Editorial

Distributed Ledger Technology – A Catalyst for New Ideas

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The phenomenon “Blockchain” has increasingly been capturing interest. Unfortunately, one can get the impression that a solution is looking for the problem. As a matter of fact, the innovation of distributed ledger technology (DLT) is a catalyst for new ideas and for the role of intermediaries in the financial industry.

But let’s take things one at the time! First, it is known that the current technical implementation of Bitcoin is inefficient, expensive, rather slow, and without sufficient throughput compared with established payment system networks. Nevertheless, it is a solution of a 30 year-old problem: how to create “electronic cash” as a substitute for real cash without any intermediaries that provide “trust”.

Second, Bitcoin is a combination of existing concepts with constraint of “eventual consistency”, because the distributed replicas of the ledger may be temporarily inconsistent, but will eventually be synchronized to reflect a golden record of rights of ownership in a “trustless” network.

Third, DLT consists of: (i) the distributed replicas of a logically uniform ledger, which is based on (ii) an unsophisticated, one-dimensional database for rights of ownership with (iii) a consensus mechanism for synchronization. Bitcoin could bypass the “impossibility of distributed consensus” described by Fischer, Lynch, and Paterson with a game theoretical approach to select a neutral referee by the digital version of tossing dices. This solution for “electronic cash” is indeed a catalyst for new ideas concerning financial transactions, transfer of rights of ownership, and “trustless” relations.

On the one hand, the inefficiency and amount of computer resources required to perform the proof-of-work consensus support a well known position of Niklas Luhmann that “trust is a mechanism to reduce complexity”. There is a significant price to pay if a system trades trust for a technical substitution. Nevertheless, in a Bitcoin world, one essential role of banks as intermediaries for risk would be questionable.



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The consequences of this substitution reach far, and Lawrence Lessig’s dark vision of “Code is Law” can be considered as Shakespeare’s “Shylock 2.0”.

On the other hand, the resources required for a consensus can be reduced if DLT is implemented for a closed group with identified – and thus trusted and permissioned – participants. Yet, an “intra-financial institution DLT” could be a paradigm shift in the way how ledgers, accounts, and financial contracts are set-up and kept in synch. This can be exemplified for securities transactions:

- Can DLT be, e.g., an alternative future basis for “TARGET2-Securities 2.0” to settle securities transactions as compared to other technological developments in the years to come?
- Can DLT make it feasible to create a distributed “electronic corpus and coupon sheet” (in German: “Mantel und Bogen”) for securities in the same way as Bitcoin is “electronic cash”?

- What kind of legal framework would be needed to provide an investor with the same right of ownership and asset protection compared to dematerialized securities kept in a custody chain and with corporate actions triggered by an Issuer-CSD (Central Securities Depository)?
- And – last but not least – what would be the pros and cons in terms of costs, speed, resilience, agility, and governance comparing DLT with bookkeeping of assets in a network of interoperable banks?

Whilst there are many technical feasibility studies with DLT going on, the key question will be about the role and the benefit of intermediaries in the financial industry. To facilitate this discussion, the E-Finance Lab and DZ BANK organize a conference at September 1st, 2016. This conference will be a platform to exchange new ideas, first experiences, and ideas for future research across disciplines and organizations. Let’s go exploring the future!