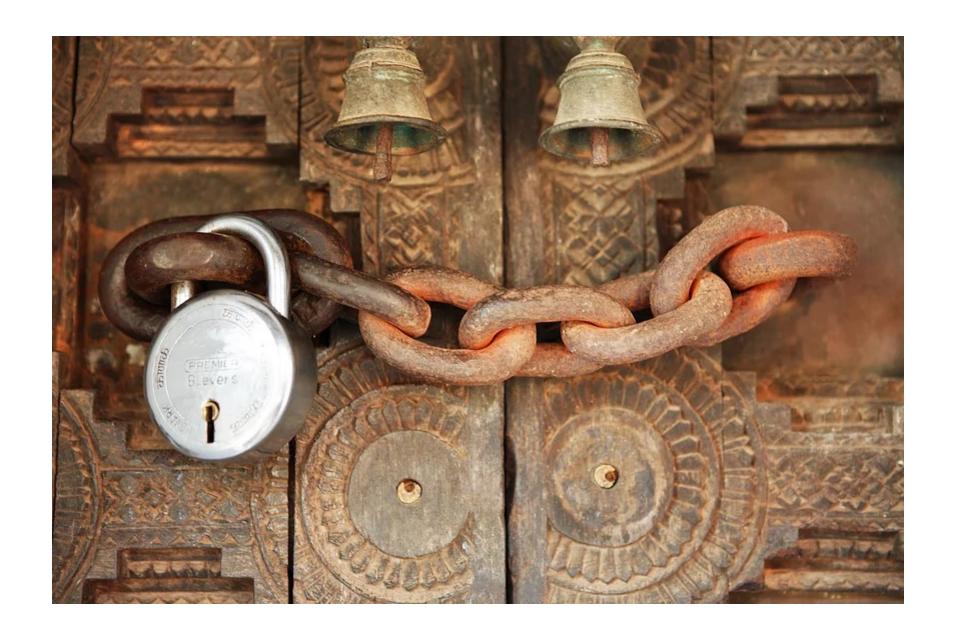
Blockchain Update: Is there a workable use case?

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What is blockchain?

- "Block-chain" is the validation technology behind bitcoin and other crypto currencies. It has a very high price in terms of per unit transaction cost, but has promising qualitative possibilities
- The technology combines industrial strength encryption with a public ledger that allows market participants to validate transactions collectively using "miners"
- Blockchain by design is extremely inefficient in order to achieve its primary purpose, namely security, but has the advantage of a public transaction record

Successful blockchain adoptions??

- In a survey of the mortgage industry and other domains, to date we are not able to find any commercially successful adoptions of the blockchain technology
- Despite an enormous amount of hype and billions of dollars in funds invested, the combination of 1) encryption and 2) public ledgers has yet to find a viable use case other than crypto currencies
- Ironically, the strong cryptography of blockchain has failed to protect the network from hacking and fraud, raising issues about the basic cost-benefit tradeoff of this type of approach

Phase I: Recent developments

"Decisions by Depository Trust & Clearing Corp., BNP Paribas and SIX Group to stop working on blockchain projects reflect Wall Street's concerns about industry readiness and cost" – *Rob Chrisman*

"Wall Street has been much more excited about the system underpinning bitcoin than the cryptocurrency itself, but the global financial industry has not yet been able to do much with the technology known as blockchain" *Reuters*

"Basically, [blockchain has become] a solution in search of a problem" – Murray Pozmanter, MD, Depository Trust & Clearing Corp

Phase I: Recent developments

"The Deloitte Center for Government Insights found last March that land registration was the second most popular area of focus for public-sector experiments being conducted with blockchain, behind digital payments and currency.

"Ranieri Solutions, a financial services technology investment firm founded by Lewis S. Ranieri, father of the securitized mortgage market, has partnered with Symbiont, the market-leading blockchain and smart contract company, to explore opportunities to use Symbiont's platform to systemically improve all aspects of the mortgage industry" – *Rob Chrisman*

Phase II: Distributed Ledger Technology

As initial enthusiasm for the blockchain technology ebbs, party due to hype and chicanery around multiplying cryptos, some observers are starting to argue in favor of using a distributed ledger technology (DLT) without the costly encryption component of crypto currency schemes

"Bank of America Corp. may not be willing to help customers invest in Bitcoin, but that doesn't mean it isn't plowing into the technology underlying the cryptocurrency. The Charlotte, North Carolina-based lender has applied for or received at least 43 patents for blockchain, the ledger technology used for verifying and recording transactions that's at the heart of virtual currencies" -- Bloomberg

Phase II: Accuracy & anti-fraud

"Since the financial crisis of 2008, there has been a certain level of distrust with respect to residential mortgages. This distrust is rooted in the secondary mortgage market, in which thousands of residential mortgage loans were originated and then sold and assigned to successor lenders and/or trustees, sometimes multiple times. The documentation for many of these assignments was sloppy or nonexistent giving rise to numerous robo-signing scandals and judges across the country who took it upon themselves to crusade against banks within the foreclosure process. All of this resulted in a much slower and more expensive mortgage foreclosure process - and raised mortgage costs more generally. The current practice of requiring title insurance for all mortgage loans also adds complexity and cost to the mortgage lending process. But it's possible that blockchain technology could provide an answer to all of these problems." -- Michael Reyen, American Banker

Phase II: Accuracy & anti-fraud

"A real-world application of DLT will occur only if it makes economic sense. An application that minimizes the potential for fraud, is highly accurate and very fast in executing transactions will not be implemented if it is more costly to operate than an alternative, less sophisticated technology. The pursuit of accuracy strongly suggests a central authority or governing body must oversee a specific application of DLT in a "permissioned" environment, with pre-agreed rules and procedures to ensure the accurate entry of transaction data into the DTL ledger, the prompt correction of data-entry errors and overall data integrity" -- Bert Ely, The Hill

Phase II: Path to adoption

- Property records are the unique province of the various states. Although there is clearly a need to improve the property sale and recordation process, the chief obstacles are political and bureaucratic
- Coming out of the 2008 financial crisis, the states, Congress and the mortgage industry fashioned a normative national standard for the foreclosure process via legislation, litigation and enforcement actions
- In the case of property records, there is no immediate political catalyst to bring the states together and have them voluntarily adopt a treaty mandating a consistent recordation and disclosure system

Phase II: Path to adoption

Two past experiences may be instructive:

- Adoption of amendments to the Uniform Commercial Code and Blue Sky laws for securities registrations since WWII provide a practical political model for how the states can collectively set a national standard
- The development and adoption of various XML reporting schemes at the FDIC and SEC (XBRL) provides a practical architecture for creating a consistent reporting template across the states and jurisdictions. The states and mortgage industry need to agree on data taxonomy as a first step

Phase II: Path to adoption

- The business use case for adoption of a DLT technology needs to be made and championed by a trusted third party who does not have the conflicts of the sea of consultants now touting DLT
- Biggest challenge is finding an organization big enough (MBA) to command the attention of the relevant constituencies in the mortgage industry and around the country
- Additional factor is that Washington must be involved to some degree to push the process and get the state legislatures to mandate adoption. Must have *eventual* buy in by *all* of the states to succeed.

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