



INTERNATIONAL CENTRE
FOR PENSION MANAGEMENT

Webinar:
Blockchain, Cryptoassets & Pensions: The
Coming Investment Wave

Presenter: Caitlin Long, Cryptocurrency expert since 2012 and former head of Morgan Stanley's pension solutions group

Moderator: Rob Bauer, Executive Director, ICPM



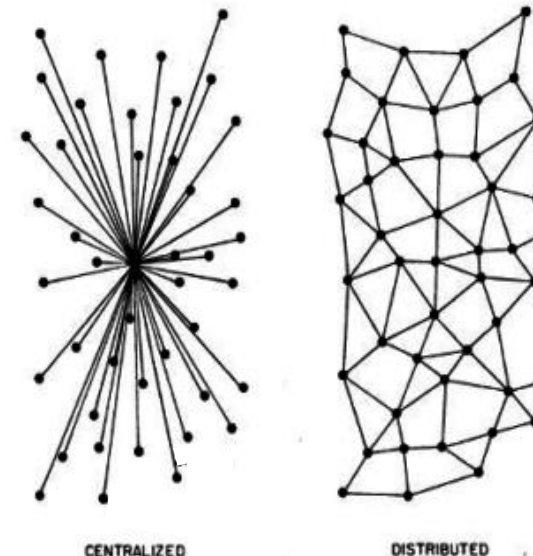
about the presenter

- **Cryptocurrency investor since 2012**
 - Chairman & President, Symbiont (enterprise blockchain start-up), 2016-2018—jointly led blockchain project for delivering index data to Vanguard
 - Morgan Stanley Blockchain Working Group, 2014-16
- **Head of Pension Solutions Group, Morgan Stanley, New York, 2007-2016**
 - Inaugurated the large-scale pension transfer market in U.S.
 - Advised GM, Verizon, Motorola, Bristol-Myers Squibb, J.C. Penney, Timken and others
 - ~\$40 billion pension obligations settled with annuity providers
 - *Institutional Investor* “Pension 40” list of most influential people in US pensions in 2015, 2014 & 2013
- **ERISA fiduciary for ~20 years**
- **Pension/insurance regulatory expertise in US & Europe**
 - President, Longevity Insurance Company, New York, 2008-16
 - Special advisor to co-CEOs of Credit Suisse for Winterthur Group restructuring, Zürich, 2002-03
- **Education**
 - Harvard Law School (JD, 1994); Kennedy School of Government (MPP, 1994), University of Wyoming (BA, 1990)

definitions

- Blockchain: new type of database

- All network participants see the same data at roughly the same time
- Shared, distributed—no need to reconcile copies
- Immutable, time-stamped—perfect audit trail
- Consensus mechanism automatically synchronizes data across network
- Data secured via cryptography



- Cryptoassets: issued, transferred and settled on a blockchain

- Examples: security tokens, utility tokens, bitcoin, ether, etc.
- Natively-digital assets
- Bearer instruments (custody is all about who holds the private key)
- Directly owned by the investor (not designed to be owned in fungible bulk in omnibus accounts)
- Peer-to-peer
- Near-real-time gross settlement (RTGS)

two AGENDA topics

1. Institutional investment in cryptoassets is already starting. Are you ready?
2. Blockchain is a solution to many financial market problems that tend to put pensions at a disadvantage. If fiduciaries do not advocate for these problems to be fixed, who will?

“The current system works poorly and harms stockholders. But the current plumbers—financial intermediaries—do not have an incentive to fix it...The good news is that you have a plunger that you can use to clean up the plumbing. That plunger is distributed ledger technologies, the technology that drives bitcoin.”

--Delaware Chancery Court Judge J. Travis Laster, “The Block Chain Plunger: Using Technology to Clean Up Proxy Plumbing and Take Back the Vote,” speech to Council of Institutional Investors, September 2016



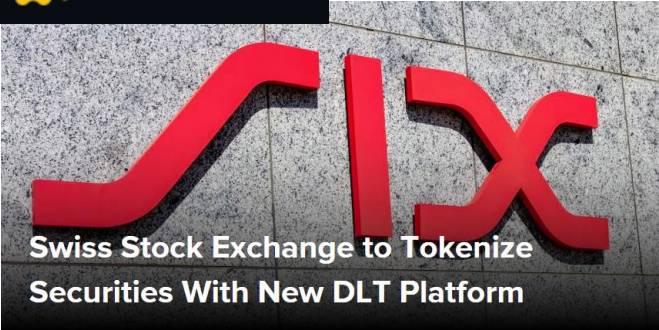
“Blockchain Plunger” speech available here:
https://www.cii.org/files/09_29_16_laster_remarks.pdf

#1. institutional investment in cryptoassets: already starting



KLINT FINLEY BUSINESS 06.25.18 08:43 PM

ANDREESSEN HOROWITZ LENDS CREDENCE TO CRYPTO WITH NEW FUND



10,029 views | Jul 22, 2018, 9:36 pm

ICOs Were 45% Of IPOs In Q2 2018, As Cryptos Disrupt Investment Banks

OPINION

Institutional Investor

Security tokens will be coming soon to an exchange near you

Sunny Dhillon @SunDhillon / 3 weeks ago



Bloomberg



25,459 views | Jul 31, 2018, 10:40am

Northern Trust Opens Doors To Cryptocurrency Hedge Funds As Part Of Pervasive Blockchain Expansion

When Will Yale Buy Bitcoin?



NEW YALE STUDY: EVERY PORTFOLIO SHOULD INCLUDE 6% BITCOIN (AT LEAST)

GEORGI GEORGIEV | AUG 08, 2018 | 09:00

Markets

Citigroup Planning Crypto Trading by Issuing Receipts

By Sridhar Natarajan
September 9, 2018, 8:04 PM EDT Updated on September 10, 2018, 9:36 AM EDT

cryptoasset investing by pensions: some questions to ponder

1. What would you do if, tomorrow, a VC fund makes an in-kind distribution of a cryptoasset to your pension fund? Is the custodian ready to handle it?
2. Should the pension fund self-custody its cryptoassets?
3. Should the pension fund's investment guidelines include an allocation to cryptoassets?
4. If the pension fund authorizes its asset managers to invest in "paper bitcoin" instruments (e.g., ETFs, futures, digital-asset receipts, etc., that use actual bitcoins instead of synthetic bitcoins), due diligence questions might include:
 - a. risk of coin theft
 - b. whether the issuer has clear contractual obligations to deliver value for forks/airdrops
 - c. how the instrument might behave in a run-on-the-bank scenario since Bitcoin has no lender-of-last-resort

how cryptoassets are likely to change pension management

1. Old and new platforms for settlement and custody of pensioners' assets are likely to co-exist for years.
2. Pension fiduciaries will likely need to develop operational risk expertise.

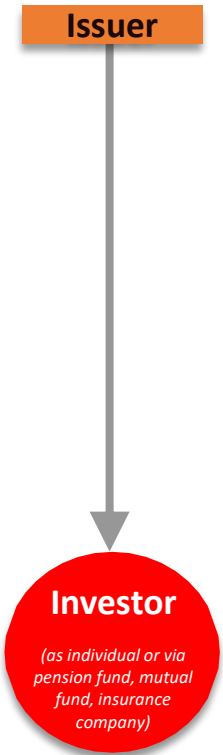
#2. blockchain is a solution to financial market problems

1. Registered owner of securities \neq true owner
- +
2. Records often kept on aggregate basis (omnibus accounts)
- +
3. Chain of custody consists of multiple leveraged intermediaries
- +
4. For lent assets, US GAAP accounting requires multiple parties to record ownership of the same asset so audits don't catch issue
- +
5. T+2 settlement delay
- =

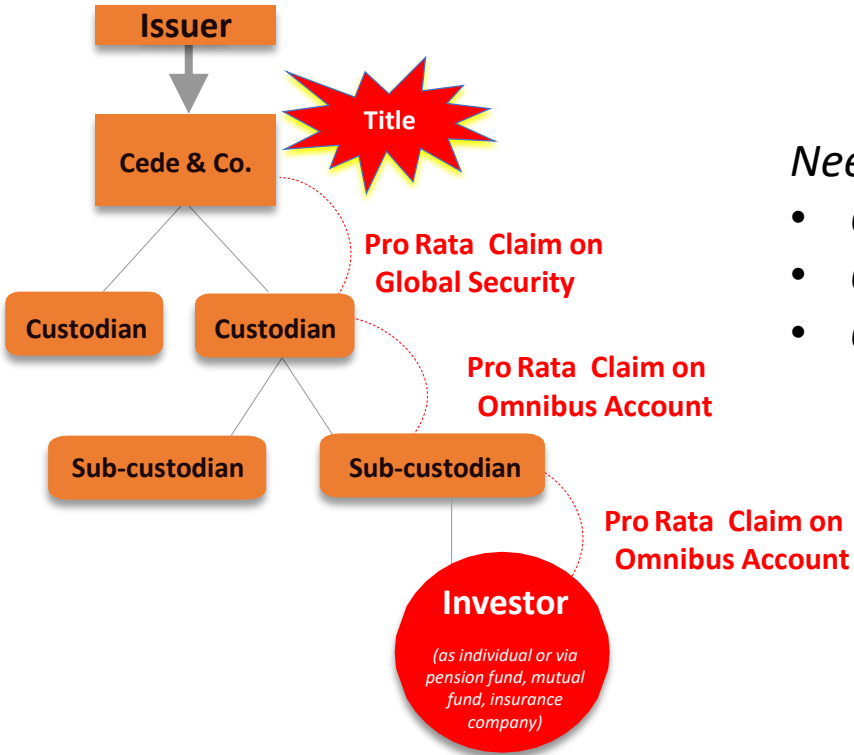
Financial System Ledgers Can Be Inaccurate/Out Of Sync. Blockchain Can Solve This.

how securities are owned

How It Used to Work:



How It Works Today (since 1994):



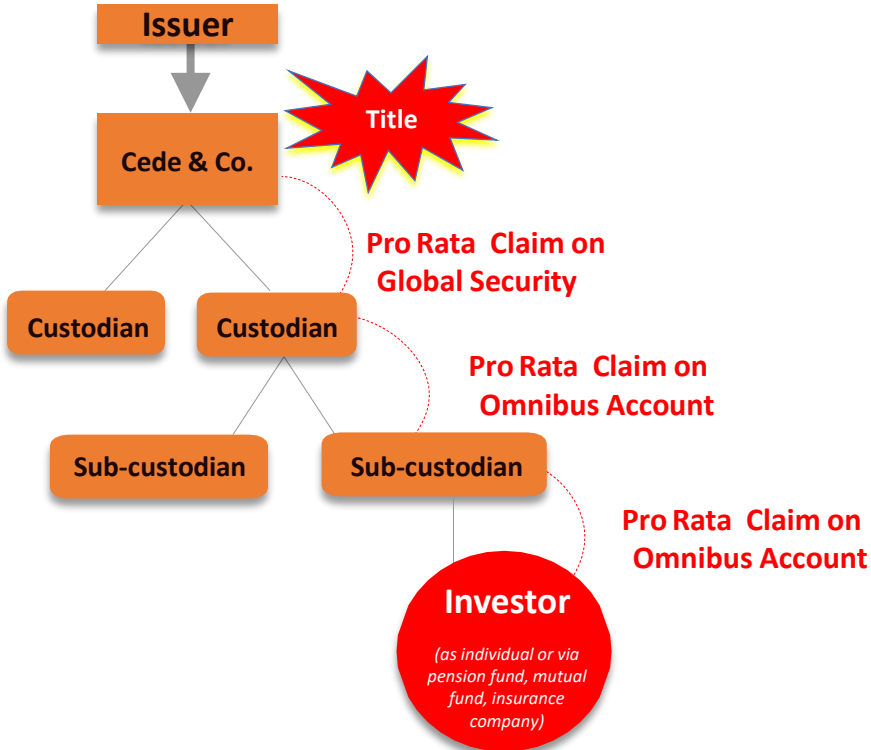
Needlessly introduces:

- *Counterparty Risk*
- *Operational Risk*
- *Over-issue Risk*

Source: based on "Restructuring Securities Systems Processing," Bank of Finland Discussion Papers, by Harry Leinonen, June 3, 2003.

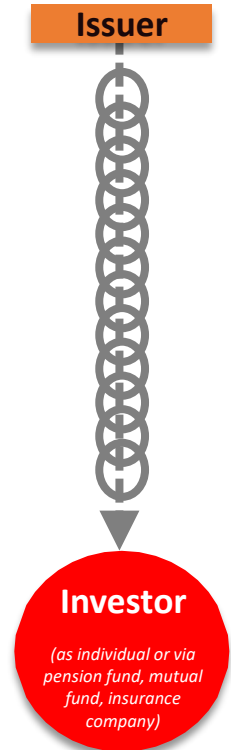
how blockchains fix this

How It Works Today (since 1994):



Source: based on "Restructuring Securities Systems Processing," Bank of Finland Discussion Papers, by Harry Leinonen, June 3, 2003.

In a Blockchain World:



- Counterparty Risk
 - Operational Risk
 - Over-issue Risk
- The list is enclosed in a blue circle with a diagonal slash through it, indicating that these risks are mitigated or eliminated in the blockchain world.

UCC article 8 (securities): what happened?

	Pre-1978	1978 Amendment	1994 Amendment
Who Holds Title?	Owner	Owner	Central Securities Depository (Cede & Co.)
Owner Owns	Property Right	Property Right	Contractual Right (IOU)
Legal Status	Title	Title	Contractual Right (IOU)
Evidence	Paper Certificate	Book Entry on Issuer's Records	Your Agent's Records, Their Agent's Records
Legal Form	Security	Security	"Security Entitlement"
Direct vs. Indirect	Direct	Direct	Indirect Pro Rata Share of the Security Entitlement Issued by Your Securities Intermediary, Which Holds an Indirect Pro Rata Share of the Security Entitlement Issued by Its Securities Intermediary, Which Holds a Pro Rata Share of the Global Security Held at the CSD (Cede & Co.)

Sources: "Handbook of Key Global Financial Markets, Institutions and Infrastructure," edited by Gerard Caprio, Jr., Chapter 50 (Securities Settlement Systems), 2013, p. 561; "Revised Article 8 of the Mississippi UCC: Dealing Directly with Indirect Holding," Bryn R. Vaaler, Mississippi Law Journal, Winter 1996, Book 2; "Policy Perspectives on Revised UCC Article 8," James S. Rogers, Boston College Law School Faculty Papers, 1996.

examples of problems

Bank of America to Pay \$415 Million to Settle SEC Probe
The bank's Merrill Lynch brokerage violated rules aimed at protecting customer assets, the regulator says

Dole Case Illustrates Problems in Shareholder System

Funds Challenging Dell Bid Find Shares Aren't Really Theirs
Interactive Brokers Fined \$5.5 Million for Naked Short Selling Violations
Industry regulator Finra settles with retail brokerage firm over what it says were ignored red flags

- Dole Food (2017): [lawsuit](#) revealed valid claims to shares exceeded shares outstanding by ~33%
- Procter & Gamble proxy contest (2017): vote tally was corrected sharply twice—official counts were +6.2 million, -42,780 and +498,312 before parties agreed to settle
- Repo market: 1 in 3 owners of a US Treasury actually owns it, per IMF
- MF Global customer account breach (2011) ⁽¹⁾
- Bank of America \$415 million settlement for using customer securities for its own profit (2016) ⁽²⁾
- T. Rowe Price/Dell appraisal rights “continuous ownership” issue (2013-2016) ⁽³⁾

(1) MF Global: customer accounts were [breached](#) as the firm was failing.
 (2) Bank of America: resolved SEC accusations that it misused customer cash and securities, essentially providing “interest-free loans of [customer money](#) for its own profit.”
 (3) T. Rowe Price: announced a \$194 million charge to compensate investors for mistakenly voting in favor of Dell’s LBO and losing appraisal rights. When Dell’s acquisition closed, DTC issued paper certificates for Dell shares that were subject to the appraisal process (in the name of Cede & Co) and delivered them to T. Rowe Price’s custody banks. This violated the policies of 2 custody banks, so the custody banks directed DTC to re-issue the paper certificates in their clients’ names instead of Cede & Co. By changing the name of the record owner of the shares, the shares no longer met the continuous ownership requirement to maintain appraisal rights under Delaware law and therefore forfeited the appraisal rights—even though T. Rowe Price neither sold its shares nor asked for the name change. Stories [here](#) and [here](#).

how big is the issue? here's the IMF's estimate

Table 1: Sources of Pledged Collateral, Volume of Market, and Velocity
(2007, 2010-2017)
(In trillions of U.S. dollars; velocity in units)

Year	Sources			Volume of pledged collateral	Reuse rate (or Velocity)
	Hedge funds	Securities Lending	Total		
2007	1.7	1.7	3.4	10.0	3.0
2010	1.3	1.1	2.4	6.0	2.5
2011	1.4	1.05	2.5	6.3	2.5
2012	1.8	1.0	2.8	6.1	2.2
2013	1.85	1.0	2.85	6.0	2.1
2014	1.9	1.1	3.0	6.1	2.0
2015	2.0	1.1	3.1	5.8	1.9
2016	2.1	1.2	3.3	6.1	1.8
2017	2.2	1.5	3.7	7.5	2.0

- Improvement since 2007
- But little improvement since 2012 despite increased regulation
- Why? Likely because lending is still happening at other layers in the system
- It's not enough to shut down lending at the broker/dealer if lending can still happen at other layers

Source: IMF working paper #17/113 "Collateral reuse and balance sheet space"—updated, by Dr. Manmohan Singh.

financial market issues: some questions to ponder

1. Have you audited your asset managers to verify that pensioners received full value in the *Dole Food* case?
2. How updated is due diligence regarding securities lending/prime brokerage, especially regarding transparency of economics and risks?
3. If you use non-lending funds, how do you know institutions in other layers of the settlement system aren't lending and thereby negating your policy?
4. How recently have you priced separate accounts vs. allowing omnibus accounts?
5. Should you work with ICPM, CIEBA, CII, NIPA, NASRA and other pension trade associations to encourage:
 - a. systemic audits that back out double-counting of the pension fund's rehypothecated assets?
 - b. a proxy voting system that ensures your votes on behalf of pensioners are accurately counted?
 - c. adoption of blockchain as a potential solution to these problems?

If pension fiduciaries don't advocate for a fair, safe and transparent financial system, who will?



THANK YOU! Q&A

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